The Interaction between Corporate Governance Changes, Ownership and Conservatism, and their impact on Performance Evaluation and Risk Modelling

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DECLARATION

This thesis is the result of research studies undertaken in the Department of Business studies at The University of Edinburgh for the degree of Doctor of Philosophy.

I declare that all the work in the thesis has been carried out by me unless otherwise stated, that this thesis has been composed by myself and that this work has not been submitted for any other degree or professional qualification except as specified above.

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September, 2006

ABSTRACT

Internationally there have been series of company scandals over the last 30 years, which have lead to the belief there is a need for improved corporate governance. The UK has not been impervious to this and the initial response was the Cadbury Report published in 1992 and subsequent reports in UK have tackled other aspects of this perceived crisis.

Many authors have studied the impact of corporate governance changes arising from these reports on firm performance. There are several studies that have tried to discover the relationship of the codes of practice, which have developed from the reports, and the risk management of companies. Given the complexity of the situation it is not surprising that the results have not reached consistent conclusions.

In this study one of the major themes, which has developed, is accounting conservatism, which exists within the accounting process. Conservatism has existed within practice of the accounting reporting through time, but the pattern of conservatism became pervasive during the 1990s. Furthermore conservatism is enforced by corporate governance changes. The pervasive existence of conservatism induces information risk in the evaluation of firm performance, and hence to the measurement of firm risks. When firm performance is measured with income related measures, such as net income or income before interests and taxes, there is the possibility misleading results occurs. Also there is a high likelihood of poor measures of firm default risk when using accounting based default model such as Altman model and Ohlson model.

The findings within this thesis will help future researchers who studies performance and risk models. As hopefully it will lead them to greater care in interpretation when they use income related variables to measure firm performance and risk.

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CHAPTER 1
INTRODUCTION

1.0 Introduction

Internationally there have been series of company scandals over the last 30 years, which have lead to the belief there is a need for improved corporate governance. The UK has not been impervious to this and the initial response was the Cadbury Report published in 1992 and subsequent reports in UK have tacklcd other aspects of this perceived crisis.

Many authors have studied the impact of corporate governance changes arising from these reports on firm performance. There are several studies that have tried to discover the relationship of the codes of practice, which have developed from the reports, and the risk management of companies. The studies have also sought the relationship between the changes to corporate governance structures, companies' performance and risk to companies. Based on this literature several approaches have been developed and applied to the available data. Given the complexity of the situation it is not surprising that the results have not reached consistent conclusions. The current study explores many of these ideas to gain insight into the relationships.

In this study one of the major themes, which has developed, is accounting conservatism, which exists within the accounting process. Conservatism has existed within practice of the accounting reporting through time, but the pattern of conservatism became pervasive during the 1990s. Furthermore conservatism is enforced by corporate governance changes. The introducing of the Codes has impacted on reporting practices. The internal monitoring of the board may have contributed to conservative reporting.

Yet, the pervasive existence of conservatism induces information risk in the evaluation of firm performance, and hence to the measurement of firm risks.

When firm performance is measured with income related measures, such as net income or income before interests and taxes, there is the possibility of misleading results. Also there is a high likelihood of poor measure of firm risks of default risks when using accounting based default model such as Altman model and Ohlson model.

There are two critical ingredients in the measurement of any economic events: models and data. Authors have developed a range of models and better methods of collection, hence improved the quality of data. There is, though, always the difficulty is making definitive statements across a number of time periods when exploring issue such as corporate governance, company performance and risk. Interpretation plays a major role since there will not be a single simple model which will account for all facets.

The findings within this thesis will help future researchers who wish to study performance and risk models. As hopefully it will encourage them to greater care in interpretation when they use income related variables to measure firm performance and risk.

1.1 Two major influences on governance structure

The corporate governance codes and ownership are the two of the major forces that influence board structure, value and reporting conservatism. Hence they affect the reporting practices which impact on value evaluation and risk modelling.

1.1.1 UK Codes

The primary purpose of this study is to investigate the impact of corporate governance changes on performance, risk and reporting. Research by Pensions Investment Research Consultants Limits(PIRC) reports that 'the overwhelming majority are of the view that their attention to corporate governance will enhance portfolio returns, by reducing risk and enhancing performance' (PIRC response,

1997). Therefore it can be expected that corporate governance changes may impact on performance and risk.

The Codes are not mandatory for the company, so each company can decide whether to follow the Codes or not. When they do not follow the Codes, the company has to explain the reasons. Previous studies have explored the evidence of whether the codes are being implemented. This thesis will investigate how the UK Corporate Governance Codes have had an impact on both board structures and reporting practices in UK.

1.1.2 Ownership structure

The impact of ownership on several factors is also studied. The changes of ownership structure provided the initial study of corporate governance. Berle-Means (1932)'s book explains the processes of the separation of ownership and control. Ownership composition is a key determinant of governance structure and decision processes (Dallas, 2004). Jensen and Meckling (1976) state that director equity-ownership increase for director incentive to monitor the firms. In relation to ownership structure, two topics are drawn in this thesis. This study will look over the changes of UK ownership, and how the ownership structure had impacted the board structure and reporting practices, see Figure 1.1

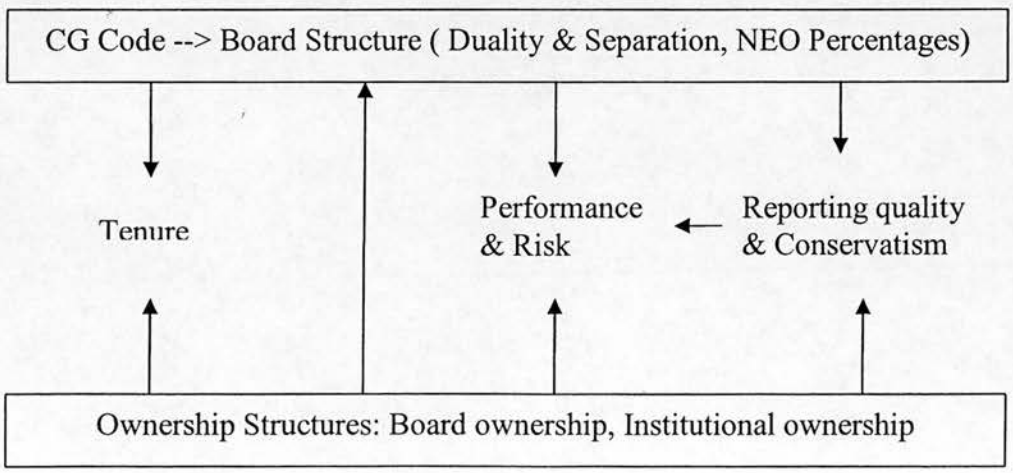


Figure 1.1 Research Map

1.2 Research Area and Research Questions

1.2.1 Definition

Corporate governance is the mechanism to solve the conflict of interest between shareholders and management. The conflict, theoretically, can be reduced by healthy governance structure: Shareholders appoint the board members and monitor their actions. There is no consensus definition on corporate governance as the following selection of definitions will testify:

- 'The purpose of corporate governance is to minimise the total cost in aligning managers' and shareholders' incentives, and in unavoidable self-interested managerial behaviours' (Jensen and Meckling, 1976)
- 'Corporate governance is the system or process by which companies are directed and controlled' (Cadbury, 1992)
- 'Corporate governance is an institutional arrangement by which suppliers of finance to corporations assure themselves of getting a proper return on their investment' (Shieifer and Vishny, 1997)
- 'The phrase corporate governance is often applied narrowly to questions about the structure and function of boards of directors to the rights and prerogatives of shareholders in boardroom decision-making. Now this definition has been broadened to refer to the whole set of legal, cultural, and institutional arrangements that determine what publicly traded corporations can do, what controls them, how that control is exercised, and how the risks and returns from the activities they undertake are allocated' (Blair, 1995)

1.2.2 Theory and UK CG codes

Broadly there are two views of corporate governance: shareholder and stakeholders perspective. The shareholder perspective emphasis the maximisation of the shareholder interests (Jensen and Meckling 1976; Cadbury 1992; Shieifer and Vishny 1997), while the stakeholder takes into account all those with an interest in the firm (Blair, 1995).

The 1990s were a critical point in term of corporate governance changes. Company scandals lead to the development of UK corporate governance codes. The Financial Reporting Council, the London Stock Exchange and the accountancy professions were concerned at the investor's lack of confidence owing to the scandals. This situation lead to the Cadbury Committee and The Report of the Committee on the Financial Aspect of Corporate Governance (the Cadbury Report) was issued in 1992. On the recommendation of the Cadbury Committee, Greenbury Report (1995) and Hampel Report (1998) were published. Following the suggestion of Hampel Report, the Combined Code (1988) was drawn from Cadbury report, Greenbury Report and Hampel Report.

In relation to the studies of the UK codes, little attention has been paid to the theoretical aspect of the UK codes. The previous studies tried to connect the relationship between board changes and performance, but mainly focused on the technical nature. This thesis tries to explain the theory perspective of UK codes. This approach is helpful to understand the Codes in theory terms and to give a richer background. This leads to the first research question which is: What is the theoretical basic to the UK CG codes?

Also this study wants to explore the UK codes as risk management tools. Risk management is the processes of risk awareness, risk assessment, risk evaluation and risk management. If the codes are applied to the companies, better management of the risk is expected. This leads to the second research question which is How have UK CG codes functioned as risk management tools?

1.2.3 Corporate governance, ownership and performance

The General belief is that good governance results in better performance. CIMA (1999) documents that 'the perceived benefits of corporate governance are reducing risk, improve performance, better access to capital markets, greater marketability of goods and services, improved leadership, and the demonstration of transparency and social accountability'.

The relationships between corporate governance and performance have been studied for two decades. Two groups of study are observed: board-specific task and board-overall performance. The board-specific task studies have consensus results, but the board-overall performance studies have not reached consistent results. Cadbury Report specifies the role of the board in terms of corporate governance. The Cadbury Report suggests there should be separation between the role of Chairman of the Board and Chief Executive Officer (CEO) and that a single individual should not hold both posts. The latter arrangement is referred to as Duality. In UK studies, the relationship between board structure and performance also has not reached consensus results. Two further research questions arise: what is the impact of the Code on board structure? , and what is the impact of the board changes on performance?

Also Ownership structure may increase firm value. Several researchers suggest a significant non-linear relationship between managerial ownership and performance (Morck, Shleifer and Vishny, 1988; Hermalin and Weisbach, 1991). Hence it seems reasonable to explore two other questions: what is the impact of the ownership on board structure? and what is the impact of the ownership on performance?

1.2.4 Corporate governance, ownership and risk

Risk is an ill defined term. There is, though, a common understanding of aspects of risk. For example Renn (1998) asserts that the definition of risk contains three elements: outcomes that affect that human value, possibility of occurrence (uncertainty) and a formula to combine both elements. Others define risk in terms of harm and the chance of the harm and in finance frequently expected loss is used.

'Risks arise from current activity, from changing external environments, and from the related decisions and actions of the board and management', see Crawford and Stein (2002). Obviously the stakeholders of a company may have different views on the risk they face given their interests. The shareholders clearly require the

managers to protect their interest in the company, possibly both over the short-term and the long-term. They would generally view the role of corporate governance to ensure alignment of the managers with the protection of the shareholders' interest.

For a company the prime risk may be avoiding bankruptcy, but also ensuring adequate returns on investment either through optimal action in investment, decision-making or capital budgeting. Boards have the responsibility to protect the company from risks, which are identified, evaluated and controlled. Kaen (2004) thinks risk management has to create value for the owners of the company, and that is the connecting between risk management and corporate governance. Altman (1968)'s Z-score and company specific risk from London Business School database are utilized to measure firm risk. It is therefore important to explore the two questions; what is the impact of the board changes on firm risk? and what is the impact of the ownership on firm risk?

1.2.5 Corporate governance, ownership and reporting

Failures of corporate governance may lead to inadequate financial reports and hence may have lead in UK to company scandals. Demirag et al (2000) state that corporations which are dominated by top managements result in creative accounting practices and hence inadequate control.

The Cadbury Committee was set up due to explore the relationship between the quality of financial reporting and corporate governance. Investors need the assurance that the financial report should have been prepared by adequate processes, not influenced by opportunistic managers. Whittington (1993) argues that failures of corporate governance may be partly due to inadequate financial reports. On the other hand, the problems of the financial reporting process may come from the deficiencies of corporate governance system. Bushman and Smith (2003) state that corporate governance structures serve to ensure both the minority shareholders and large shareholders by providing honest information. This leads

to exploring two other questions; what is the impact of the Codes on financial reporting? and what is the impact of the ownership on financial reporting?

1.2.6 Conservatism and Risk modelling

Arising from this concern over reporting quality is the desire to produce conservative accounts, which do not overstate the health of the company in terms of aspects such as accruals. This has lead to accounting conservatism which is reinforced by corporate governance. Three methods are used for measure accounting conservatism: Cumulated non-operational accruals, discretionary accruals, and earning-return association methods.

Data becomes information when users can understand and utilise the data. Users should consider several factors including who supplies the information, what are the information trends, and how to identify the information risk in financial reports.

In this study one of the major themes, which has developed, is accounting conservatism. Conservatism has existed within practices of accounting reporting through time, but the patterns of conservatism became pervasive during the 1990s. The pervasive existence of conservatism induces information risk in the evaluation of firm performance, and hence to the measurement of firm risks. Also there is a high likelihood of poor measurement of firm risks of default when using accounting based on default model such as Altman and Ohlson models. Hence it is worth investigating the impact of conservatism on the default models, thus adding the three final questions; what is the impact of the conservatism on Altman model? What is the impact of the conservatism on Ohlson model? and which model is more sensitive to the impact of the conservatism?

1.3 Research Scope

1.3.1 Space: UK

UK is the leading country in corporate governance reform, introducing the Cadbury Report. The release of the Cadbury Code in the UK is considered as a key development in the modern literature on corporate governance in practice (Dallas and Patel, 2004). This has led to many studies providing interesting findings. The current research aims to add to there studies.

1.3.2 Reliability of UK data

UK financial and market data are reliable compared to many countries. Such data will lead to reliable research results. Taffler (1984) confirms that UK has an ideal financial environment for the successful development of statistical models.

1.3.3 Industry

This study focuses on manufacturing industry. There are two main reasons to choose manufacturing industry. First, manufacturing is not so regulated as either utilities and financial institutions. Second, the default models such as Altman model and Ohlson model are based on manufacturing industries. For comparability of research result, this study uses manufacturing industries.

1.3.4 Time: 1990-2000

UK has changed its corporate governance since 1992, after issuing of Cadbury Report in December 1992. Therefore this research limit the period of study to before the Cadbury and after the Cadbury, during 1990s.

1.4 Report Structure

The remaining thesis is structured as follows. Chapter 2 starts with corporate governance theory and UK CG codes. Chapter 3 explains the risk management aspect of corporate governance Codes. This chapter also include the role of the corporate governance participants. Chapter 4 is the initial literature reviews on the performance related studies. Chapter 5 explore the default models, mainly Altman's model, Ohlson model and Merton models. Chapter 6 evaluates the reporting quality and accounting conservatism. Chapter 7 describes the research methodology. Chapter 8 provides the results of the analysis of the data. The conclusions are given in Chapter 9. Chapter 10 describes is the contribution of this study and further study that may be undertaken.

CHAPTER 2
DEVELOPMENT OF CORPORATE GOVERNANCE IDEAS

2.0 Introduction

Before it is possible to explore relationship between corporate governance and risk there is a need to understand the concept of Corporate Governance. Unfortunately there is not a single view of corporate governance and the term becomes referential. The main difference is between a view from shareholder, and a view from stakeholders. These two positions will be discussed in first part of the Chapter.

During the late 1980s the concerns about protection of shareholder value led UK bodies to the decision to set up the Cadbury Committee to advice on best practice in corporate governance. Subsequently this led to a number of refinements, and so a series of codes for good corporate governance developed over time. The final section reviews the UK codes in light of the theory.

2.1 Shareholder View of Corporate Governance

2.1.1 Introduction

According to the theory that has developed based on the shareholders position corporate governance should maximise shareholder return. When corporation maximise shareholder value, it should lead to improvement of the corporation's performance. This therefore leads to social benefit for the whole society. In this theory it is held that shareholders have title to residual claims since they are the residual risk-bearers, they have made the investment. The shareholder returns are incentives for this risk-bearing group (O'Sullivan, 2000). Therefore shareholder should have the power to control the corporation and the corporation should run for benefit of the shareholder.

2.1.2 Inherent property rights theory

2.1.2.1 Basic Concept

The corporate property is the aggregation of individual property rights under this concept. Thus the shareholders, the owners of the property, are the owners of the corporation. Therefore the board have a legal duty to act in the interest of the shareholders. Inherent property rights theory sees companies as private institutions, and the companies were managed on the basis that they are private property.

2.1.2.2 Development

Inherent property rights held sway in the corporate law theory since the 1800s and until the early 1900s (Blair, 1995; Letza and Sun, 2002). Inherent property rights assume that 'the right to incorporate is inherent in the right to own property and write contracts and corporations are regarded as legal extensions of their owners' (Allen, 1992).

The neoclassic economists, such as Hayek and Friedman, follow the tradition of the Inherent property rights. Hayek (1969) has the view that individual owning private property ensures the most efficient economic results, and derived form this corporation has to seek maximise shareholder profits. If a corporation uses its sources for any social purposes it is abuse of management power and result in inefficient outcomes. Friedman (1962) provides major support for the property rights. He states that: 'there is one and only one social responsibility of business-to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the games, which is to say, engage in open and free competition, without deception or fraud'.

Sternberg (1998), one of the strongest supporters of the shareholder theory, refers solely to shareholders in her definition in corporate governance because corporations are the property of their shareholders. These strands provide a view, which supports

the shareholders as the controllers of the corporation and that corporations should be run for their benefit.

2.1.2.3 How to enhance corporate governance systems

The neoclassic economists stress maximisation of the profit, and minimisation of the social responsibility. Hayek (1969) argues that property right and control of shareholders should be fully protected and be strengthened. Friedman (1962) argues that managers should pursue only shareholder interest, and should not allowed for social responsibility

Sternberg (1998) argues that the corporate governance can be improved by enhancing the accountability to the shareholders. She (1998) asserts that to achieve this, there needs to be the effective internal control (shareholder voting rights, independent non-executive directors, and information disclosure to shareholders) and market control for the managers.

2.1.2.4 Evaluation of the theory

The theory underlines safeguarding of the shareholder interest, and legal duty of the managers. This theory provides the basic and essential ideas of corporate governance, but understanding within the legal duty of the board leads to a narrow concept of corporate purpose. According to this theory there is only one purpose of the company: maximising profit for shareholders. Yet there is another aspect of the company purposes, such as the interest of employees, and suppliers.

2.1.3 Managerial Hegemony theory

2.1.3.1 Basic idea

This theory holds that professional managers actually control the company as shareholdings become dispersed. This situation makes the board a rubber stamp and all decisions are dominated by professional managers.

2.1.3.2 Development

This theory was developed in studies of the large companies. During the second half of the 1900s the process of separation of ownership and control was developed among the large companies. Berle and Means (1932) defined this process 'the separation of ownership and control'.

Managerial hegemony theory holds that boards are constrained from decision making due to lack of information and knowledge (Hung, 1998). Therefore the real responsibility of running and controlling the company is corporate management.

Berle and Means (1932) explain reasons to abandon the control to the management as:

- The management have better knowledge and expertise than shareholders.
- The shares of an individual investor in large company may be not significant
- The investor has always the option of selling unless there are specific restrictions.

The procedure for selecting directors also contributes the managerial dominance. Pfeffer (1972) states that ' the selection procedure by which board members are chosen guarantees that board members are handpicked by management. In many practical respects, management is in control of the boards'.

2.1.3.3 Enhancing corporate governance

To relieve the managerial dominance in the company, the introduction of outside director is recommended by many researches. Yet the most important aspect of the outside is dependent on how independent they are. The ineffectiveness of the board to monitor the management is from the lack of the independence of the outside directors (Stiles and Taylor, 2001).

To secure the independence, transparent selection process is required. Cadbury Report (1992) recommends that the appointment of non-executive director should be 'a matter for the board as a whole and that there should be a formal selection process'.

Zeitlin (1974) states that the increased concentration of ownership and interlocking directorship can reduce the conditions of the managerial hegemony.

2.1.3.4 Evaluation of the theory

A lot of empirical studies have supported the theory. Mace (1971), in the study of US directors, reports less involvement in strategic decision except when there is a crisis and control rested with the chief executive rather than board. Lorsch and Maclver (1989) document that power in normal times rested with the chief executive rather than the boards.

2.1.4 Agency theory

2.1.4.1 Basic idea

Agency theory argues that agents, the managers, do not always act for the interest of the principals and pursue their own interest. This self-interested motivation creates agency problem.

2.1.4.2 Development

The idea of corporation as a nexus of contracts was developed by Alchian and Demsetz (1972) and Jensen and Meckling (1976). The concept of the contract applied to the relationship between shareholder and managers. The contract between shareholder and managers is conditioned by incentives by paying according to performance.

Agency theory views the shareholders not as the owner of the company but the residual risk takers of the company (Alchian and Demsetz 1972). The shareholders have most to gain if the company is a success, but have most to lose if the company fails. In this case there is conflict of interest between managers and shareholders.

2.1.4.3 Enhancing corporate governance

The question that arises is how under agency theory the shareholders position can be maintained. Given the management will act out of self-interest can this be employed to ensure the interest of the shareholders can be protected or improved. Several potential mechanisms have been suggested to resolve the difficulty: contracts (Jensen and Mecking, 1976), equity ownership (Jensen and Mecking, 1976), capital and labour markets, (Fama, 1980) and the influence of the Board on the manager (Fama and Jensen, 1983).

A corporation is governed via the contracts it has developed over time and therefore contracts should be used to ensure the maximisation of shareholder value. The alignment of the interests of the agents and principals can be achieved through the nature of the contract, which specifies the returns due to agents in service of the principals' goal.

Fama and Jensen (1983) state 'the board is not an effective device for decision control unless it limits the decision discretion of individual top managers'. The combination of the two roles in one person, duality, will lead to a concentration of power and consequently, owing to the agency costs involved in this, lower returns to shareholders (Stiles and Taylor, 2001). This is equally the position of Jensen (1993) who believes a board of directors may fail in case of a CEO dominant on the board, a low equity ownership among the board members, an excessively large board members, and a culture of consent. A summary is given in Table 2.1.

Table 2.1: Control tools to protect shareholders' value

Control tools	Functions	Authors
Optimal contracts	To maximise the shareholder	Jensen and Meckling (1976)
Equity ownership	To Align goals of the managers and owners	Jensen and Meckling (1976)
Capital market, Labour market	To control the behaviour of managers	Fama (1980)
Boards	Monitoring devise	Fama and Jensen (1993)
Shareholder activism	To encourage executives and directors to adopt practices that insulate shareholders from management self-interest	Daily et al (2003)

2.1.4.4 Evaluation of the theory

The acceptance of Agency theory is down to its simplicity of description of human nature. It puts greed above altruism, which perhaps fits in with most peoples' low view of human nature. It provides a rational framework, which appears as old as time and appears met in many contexts. Daily et al. (2003) attribute the popularity of agency theory to two factors: the theory is simple and the self-interest assumption is both age-old and widespread.

There are many detractors from the theory because of its simplicity. A simple rule cannot hope to cope with the realities of number of complex and interconnected decision processes. Agency theory cannot explain a particular individual, or the way a particular corporation will act (Ryan et al. 2002). The theory regards structure as a control device. Therefore it cannot explain the interaction between management and the structure. In the context of the Board and its effectiveness the theory tends to be short sighted in terms of explaining and predicting effectiveness, (Corley, 2005). It also seems to ignore aspects such as directors' resources, services, and their strategic roles (Daily et al, 2003). Contracts by themselves are only an instrument they cannot solve all the problems and issues.

Agency theory follows neo-classic economics and is based on individual decision making, assuming the maximisation of self-interests. In most studies of governance-performance relations, though, the board is the main subject of the study. Boards are the aggregation of individuals, therefore the agency theory could not be argued to be an appropriate basis for such a study, unless the whole board act as a single identity. If one did treat as such then there would be difficulties in conflation between the role of monitoring and management.

2.1.5 The finance theory

2.1.5.1 Basic idea

A refinement of the agency theory is finance theory, another kind of agency theory. In the finance theory there is more focus on the market control of corporate

governance. The theory holds that shareholders' interests are best served by maximising share price in the short run (Letza and Sun, 2002).

2.1.5.2 Development

Financial theory had a critical role in the 1980's takeover movement. This line of study tried to find the merits of the conglomerate merger and the hostile takeover as mechanism for reducing agency cost. Jensen (1993) supports this view in saying that takeover activities provide an early warning system that motivated healthy adjustments to the excess capacity.

2.1.5.3 Enhancing corporate governance

The supporters of this theory hold that removing restriction on market enhances corporate governance and allows the market to take corporate control (Fama, 1980). Those who believe in the market mechanism would wish to let it freely operate, and oppose any interference to the market, (Kirkbride and Letza, 2003). In doing so the finance theory provides background for the mechanism of control. Market governance is seen to be the most effective control mechanism because the pressure of capital markets and potential takeovers can discipline managers and maximise shareholder value (Letza el al, 2004). Any market activity causing the increase of the stock price is therefore justified including hostile takeover (Blair, 1995).

2.1.5.4 Evaluation of the theory

The inherent difficulties are accepting that market forces and market mechanism are efficient and effective. Collapses of large concerns, ENRON and WorldCom, indicate that the market can be manipulated and stock prices may describe a false position. Kirkbride and Letza (2003) state that 'society can not solely rely on the market mechanism and additional corporate governance measures are required'. This assertion is rational to see the evidence of the collapse of large corporation, which manipulated the stock price.

2.1.6 The myopic market theory

2.1.6.1 Basic idea

This theory argues the problem of the current corporate governance is its short-term vision. Under this view the managers focus on short-term performance sacrificing long-term value (Charkham, 1994). The emphasis on shareholder value can simply be translate into market price and hence can lead to the obvious problem of short-termism.

2.1.6.2 Development

The issue possibly caused the failure of ENRON. This is the fundamental flaw of Anglo-American model of corporate governance. The criticism on Anglo-American model based on its poor performance compared to that of Japan or Germany in the 1980s. Keasey et al. (1997) states that institutional fund managers are judged on a relatively short-term horizon, which results in over-concerned with short-term forecasts. Typically Fund Managers are assessed on a 1-year basis and so expect returns within this timescale.

The myopic market model also raise a question that whether the stock price is a reliable guide to future value. This model views that stock price is not a good indicator of corporate performance.

2.1.6.3 Enhancing corporate governance

The model contends that 'corporate governance reform should encourage shareholder and managers to share long-term performance horizon' (Letza and Sun, 2002). The advocates of this model want to corporate governance arrangement to shield managers from shareholders pressure, especially pressure to focus on short-term stock prices.

In this sense, the market control is not an efficient disciplinary mechanism. The threat of a takeover may lead managers to act against the threats, which may result in distorted results.

2.1.6.4 Evaluation of the theory

The theory is used as a criticism of Anglo-American model of corporate governance, in which there is a trend that requires short-term results. Sternberg (1998) argues that the assertions of the 'short-termism' is used inappropriately for as Riley (1997) reports the typical shareholding period of large UK institutional investor is 18 years.

2.1.7 Stewardship theory

2.1.7.1 Basic idea

This theory assumes that managers are actually behaving just like stewards to serve the shareholder's interests and work diligently. Managers' willingness to act as steward to serve the company may come from self-achievement, responsibility and working ethics.

2.1.7.2 Development

Stewardship theory is based on a human relationship perspective (Hung, 1988). This assumption is contrary to agency theory, since they become altruistic servants of the shareholders.

Donaldson (1990) argue that managers are motivated by non-financial motivations, saying 'managers should be regarded as wanting to do a good job, to be good stewards of corporate assets rather than managers being seen as opportunistic, self-interested actors'.

Donaldson and Davis (1991) state that the executive managers far from being an opportunistic behaviour, wanting to do a good job, therefore stewardship theory holds that performance is decided by the structural situation in which the executive is located. As a result, managers and shareholders can have partnership relationship. Donaldson and Davis (1991) find that shareholder returns, in terms of return of equity are superior when there is CEO duality.

2.1.7.3 Enhancing corporate governance

This theory argued that the economic performance of a firm increases when power and authority are concentrated in a single executive. Unifying command at the head of the company can have a beneficial effect on shareholders returns, by providing greater unity of direction and strong command and control. This belief is based on depth of knowledge, commitment, access to current operating information and technical expertise of the manager. These are seen as important requirements enabling a company to be run effectively.

2.1.7.4 Evaluation of the theory

There is some support for the existence of the stewardship within UK. UK Accounting Standard Board (1995) defines the stewardship as 'the accountability of management for the resources entrusted to it'. Yet Devine (1985) states that 'the concept of stewardship is difficult to define, but one of its characteristics is certainly responsibility for accomplishing objectives'.

2.1.8 Resource- dependence theory

2.1.8.1 Basic idea

The resource dependent theory views companies as interdependent with their environments. Therefore this theory regards Boards as provider of resources of expertise and experience (Hillman and Dalziel, 2003).

2.1.8.2 Development

This theory view boards as important boundary spanners (Zahra and Pearce, 1989), which assume that a new director enhance a firm's ability, reputation and capacity to deal with uncertainty. Several researches support the idea that the board provides the resources of the knowledge and net-workings. Lorsch and MacIver (1984) state

Board's key normal duty is giving advice and counsel. Demb and Neubauer (1992) argue Non-executive directors need to be involved in the decision-making process. Hill (1995) document Non- executive directors are involved in reviewing and refining the strategic decisions in UK.

The board provides expertise in relation to risk management as is indicated in the following. The role of the board is to provide information to reduce environmental uncertainty and to extract resources for company operation (Stiles and Taylor, 2001). Pfeffer (1972) states that resources can help diminish the uncertainty. Borokhovich et al.(2001) report that most active firms in risk management are those firms with larger number of outside directors on boards.

2.1.8.3 Enhancing corporate governance

This theory views the outside directors as a resource of the company. The outside directors can provide their expertise and can be a connection point between the company and outside. Therefore this theory supports the existence of outside directors.

2.1.8.4 Evaluation of the theory

Zahra and Pearce (1989) state three limitation of the approach. It fails to theorize the processes by which director's strategy link to corporation performance. It ignores the dynamic of power in board composition and changes. It fails to assess the links between board variables and corporate social performance.

2.2 Stakeholder View of Corporate Governance

2.2.1 Introduction

The stakeholder advocates view that corporation do not exist solely for shareholders, but also should take account of the interests of other stakeholders. It therefore suggests that a corporation should not simply aim to optimise shareholder value. As Keasey et al(1997) state that 'the central proposition at the heart of the stakeholder approach is that the purpose of the firm should be defined more widely than the maximization of the shareholder welfare alone.'

In this context corporate governance is not to ensure shareholder control of the corporation to achieve the goal maximising shareholder value. Corporate governance becomes the rules and structures that ensure that divisions of the returns from the corporation are shared equitably amongst the stakeholders.

2.2.2 Social entity theory

2.2.2.1 Basic idea

This theory views the corporation not as a private association, but as both a public association and a social institution. Hence the corporate governance should reflect the legal and political aspects of the 'public association' and it is vested in the Board of Directors to act in accordance with such.

2.2.2.2 Development

Social entity theory is related to communitarian theory, which views the corporation as a political tool for social purposes (Dine, 2000). Sullivan and Conlon (1997) state that 'the standard of a corporation's usefulness is not whether it creates individual wealth but whether it helps society gain a great sense of the meaning of community

by honouring individual dignity and promoting overall welfare'. Allen (1992) states that in addition to assurance of return sufficient to shareholder, the corporation has other purposes including the satisfaction of consumer wants, the provision of meaningful employment opportunities and contribution to the public life.

This theory has been promoted by three major theoretical concepts: economic democracy, associationalism and communitarian nation of property, see Letza and Sun (2002)

2.2.2.3 Enhancing corporate governance

This theory holds that corporate governance is improved by nationalising corporation or by using legal intervention and improving the system of checks and balance (Allen 1995).

2.2.2.3 Evaluation of the theory

This theory justifies stakeholder interests on the basis of moral value and human rights. This moral and human rights lead to political orientation of the company. This political aspect of the company restrains the right of the individual rights in the company.

2.2.3 The pluralistic model

2.2.3.1 Basic idea

The pluralistic model holds that the corporation should have multiple interests of stakeholders rather than only taking the shareholders' interest. Under the basic idea of this model, to make the corporation more efficient and more legitimate the corporation should serve and accommodate wider stakeholder interests.

2.2.3.2 Development

Blair (1995) argues that other stakeholders, especially employees, who make firm specific investment, bear risks in the firm, and have residual claims, can also claim ownership rights. There are those that argue that increasing the rights within an organisation can lead to the corporation being more effective.

2.2.3.3 Enhancing corporate governance

Cooperative and productive relationships will increase only if the directors are permitted to balance the interests of shareholders with other stakeholders whom are committed to the company (Coyle, 2004). An example is Stoney and Winstanley (2001) who argue that 'most commonly it is argued that stake-holding is instrumental in increasing efficiency, competition and profitability'

2.2.3.4 Evaluation of the theory

This theory does not move away from ownership rights, which is supported by shareholder theory, but the theory moves toward the multiple stakeholders' interest. This view is supported by modern corporations, which run for long-term purposes. It is reasonable to say that the balance between stockholder and stakeholder should be maintained.

2.2.4 The trusteeship model

2.2.4.1 Basic idea

The trusteeship model suggests that management are not the agents of the shareholders, but the trustees of the corporation (Kay and Silberston, 1995). The trusteeship model appears similar to stewardship theory, but the trusteeship theory holds that managers have variety range of motivation other than maximizing their own benefits or shareholder benefit.

2.2.4.2 Development

The idea that management are not the agents of the shareholders is stems from the concept that shareholders are not the owner of the company. Kay and Silberston (1995) argue that shareholders are merely the residual claimants of the corporation. The company itself is a separated identity; therefore the company has its own rights and duties, and its own will and capacity to act. Therefore the management is the trustee of the company, not the agents of the shareholders.

Within a trustee model the Board act to ensure that the interest of the various groups of the stakeholders are maintained, Harris (1982). Harris (1982) argues that 'Management claims that it is in the best position to reconcile and satisfy the numerous and conflicting demands made of it, and that its performance in doing so is adequate.' This would mean there is no need for unions, state or other interventionist bodies.

2.2.4.3 Enhancing corporate governance

In this model the corporate governance is enhanced if Board can act independently. The power needs to be invested in the independent directors who nominate directors and select senior managers and appoint CEO for fixed term, say 4 years, see Letza and Sun (2002)

2.2.4.4 Evaluation of the theory

This theory holds a realistic and descriptive perspective on publicly held corporation, such as museum, and university.

2.3 UK Initiative of Corporate Governance Development

2.3.1 Historical development of Corporate Governance

In 1553 the first joint stock company was founded in London. The company was a trading venture, which became the Muscovy Company (Charkham, 1994). Cadbury (2002) introduces the East India Company as the first company that has the similar structure of the corporate governance to that of modern company. A Royal Charter was granted to the company in 1600. The governance structure was a General Court and the Court of Directors. The General Court acted as the function of Annual General Meeting, while Court of Director has the function of Board.

The recent history of the corporate board in US has been of empowerment as described by Clark (1998). In the 1950s and 1960s the role of board was unfavourably described by Mace (1971) as 'Directors are ornaments on the corporate Christmas tree'. During the 1970s the movement for the independence and empowerment was initiated, though, it suffered a set back as during the 1980s the focus on the board receded was replaced by the disciplines of the capital markets. The 1990s reasserted the empowerment of the board.

MacLean (1999) states that the interest in corporate governance in 1990s emerged form contentious issues such as business scandal, remuneration controversies, a growing number of acquisitions and mergers. Whittington (1993) argues four themes that facility the development of corporate governance: creative accounting, business failures and scandals, director pay level, and short-terminism.

2.3.2 UK Economy Environment

Elliott and Elliott (2005) document the correlations in consideration of development of corporate governance requirement. (1) The higher the value of listed companies to GDP, the more developed the corporate governance requirement. (2) The wider the share ownership held by financial institution or individuals, the greater the need for corporate governance. (3) The USA and the UK, and its former colonies, have a

much more developed corporate governance requirement than other countries. (4) Countries with single boards have a greater governance requirement.

Table 2.2 shows that UK economy has changed over time, with the decline in Agriculture and in Manufacturing, and the increase in the Service sectors in the per cent of GDP. Sawyer (2005), though, suggests that ' the value of manufacturing out in Britain has for most of the last half-century continued to rise, albeit slowly: it is the share of manufacturing in total output, which has declined, not the absolute amount'.

Table 2.2: The structure of British economy, 1961-2001 (% Shares in GDP)

	1961	1971	1981	1991	2001
Business services, finance, and property	6.4	7.2	11.0	16.0	20.7
Manufacturing	33.8	31.0	24.1	20.7	16.8
Distribution, hotels, and catering	11.4	10.5	12.1	14.0	14.9
Education, health and social work	3.9	5.5	9.1	11.2	12.5
Transport and communication	8.1	8.1	7.1	8.2	7.7
Construction	6.1	6.8	5.7	6.0	5.2
Public administration and defence	5.5	6.9	7.2	6.6	4.6
Energy and water	5.5	4.4	10.3	5.2	4.5
Agriculture, forestry, and fishing	3.9	2.8	2.1	1.7	0.9
Other	15.4	16.9	11.4	10.3	12.3

Source: Sawyer (2005)

London Stock Exchange (LSE) is the main market for the listing and trading of UK equities. Even the stock market provides a small proportion of industry funds, see the following Tables 2.3 and 2.4 which shows that UK is the highest in the value of listed companies as percentage of Gross Domestic Production (GDP).

Table 2.3: Value of listed companies as percentage of GDP

	1980	1985	1990	1994	1996	1999
UK	38	77	87	114	142	247.5
US	50	57	56	75	114	184.5
France	8	15	26	34	38	117.9
Germany	9	29	22	24	28	76.7
Italy	6	14	14	18	21	71.3
Japan	36	71	99	77	64.5	-
Netherlands	17	47	42	67	95	205.1
Spain	8	12	23	25	33	87
Sweden	10	37	40	66	95	182.9

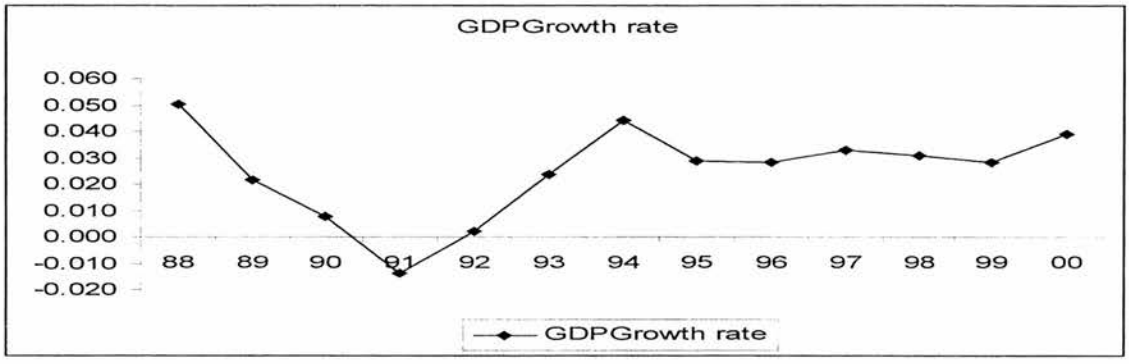
Source: Adopted from Elliott and Elliott (2005), Charkham (1994), Van Der Elst (2000)

Table 2.4: Equity raised by listed companies as per cent of GDP

	1990-1992	1993-1995	1996	1999
UK	1.36	1.67	1.21	1.28
US	0.54	1.13	1.87	1.18
France	0.62	1.12	0.80	1.55
Germany	0.62	0.68	0.19	0.45
Italy	0.43	0.83	0.18	2.15
Netherlands	1.97	3.29	2.47	8.87
Spain	0.86	-	0.68	5.48

Source: Van Der Elst (2000)

The annual growth rates of GDP show that 1990-1991 was a period of recession, see Figure 2.1, but for most of the 1990s, there are stable in GDP growth rate.



Source: Office for National Statistics (2000)

Figure 2.1 GDP Growth rate

2.4. UK Corporate Governance Codes

2.4.1 Introduction

This section will explore the historical development of the UK codes of corporate governance. There have been a series of reports since 1992 these are presented in Figure 2.2. Cadbury Report was response to corporate failure and to doubt about UK corporate governance system. The Greenbury Report is another response to the unjustified compensation package for the executives. The Hampel Report is the review of the implementation of the Cadbury and Greenbury Report. The Combined

Code brought together both the Cadbury Report and Hampel Report into s single code. Turnbull Report is on how to implement the Combined Code with regard to internal control. It also has major concern for risk management. The Higgs Report provides guideline on making non-executive director more effective. Smith Report gives guideline for audit committee. Figure 2.1 shows the timeline for the various reports.

Therefore Cadbury Report and Hampel Report are importance to study UK corporate governance codes. In this section Cadbury Report and Hampel Report will be discussed in more detail. In the subsequent sections the codes impact on aspects of corporate governance will be explored. In each report, three major issues will be investigated: role of the shareholder, boards and non-executive directors.

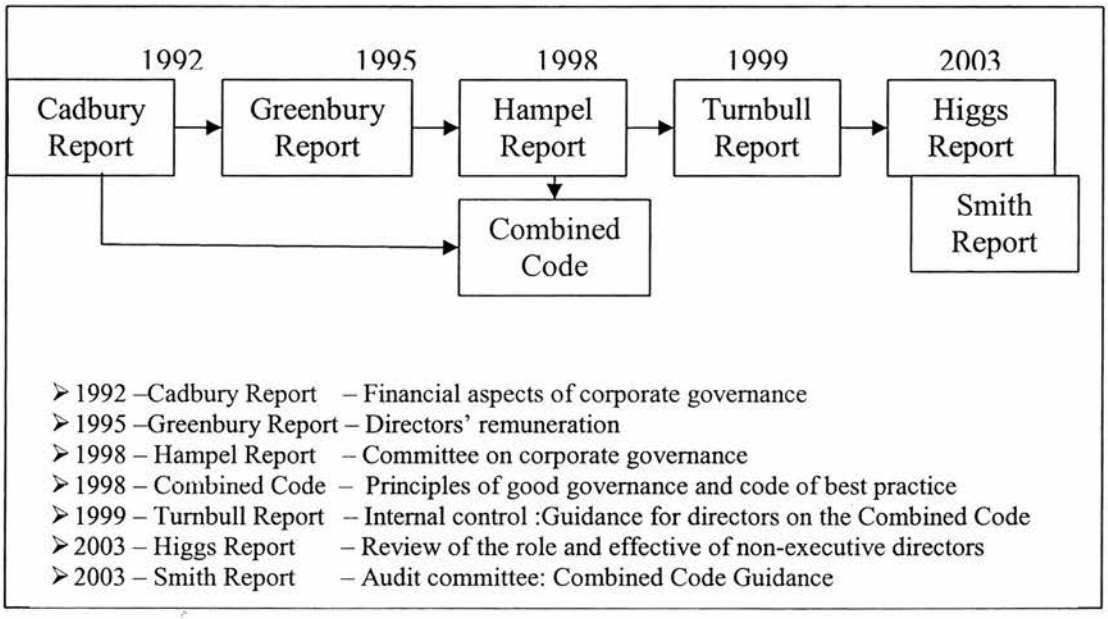


Figure 2.2 Development of UK Corporate Governance Codes

2.4.2 Role of the Shareholders

The Codes obviously provide guidance of best practice. In this section the power and the role of the shareholders are considered under the various codes.

2.4.2.1 Cadbury Report

Cadbury Report specifies the role of the general shareholders in terms of corporate governance and suggests their role is to appoint/elect individuals to specific roles. For

example the shareholders should appoint directors and auditors, paragraph 2.5 of the code. Also under this paragraph the shareholders should 'satisfy themselves that an appropriate governance structure is in place'. The need for electing appropriate board members by shareholders is also emphasised in paragraph 4.2 and they should do this to ensure they are properly constituted and 'to prevent one individual's dominance'.
The code also calls for a more active role by institutional investors to secure better corporate governance. Institutional investors have substantial power given their shareholding and so to act responsibly they should use this holding 'to influence the standards of corporate governance'. They have a duty as owners, on behalf of the investors they represented, to ensure that appropriate changes are made in corporations, rather than taking the option of walking away by selling shares. This is under paragraph 6.10.

2.4.2.2 Hampel Report

The report documents that 60% of shares in listed firms are held by UK institution and of remaining 40% are owned by individual and overseas owners. This gives institutional investors a major role in determining the behaviour of corporations. Therefore the Report requires the institutional shareholders 'to make considered use of their votes' in paragraph 2 CI.

2.4.3 On Board of Directors

2.4.3.1 Cadbury Report

The responsibilities of the board are setting the company's strategic aims, providing the leadership to put them into effect, supervising the management and reporting to shareholders on their stewardship as listed in paragraph 2.5. The Report emphasised the collective ability of the board, which provide both the leadership and the checks and balances.

The Report provides guidance on the way to achieve an effective board. This includes the compositions, which suggest that the board should be 'made up of a combination of executive directors and of non-executive directors under a chairman who accept the duties and responsibilities which the post entails', see paragraph 4.1. The member of the board should work together under the chairman, (paragraph 4.2). The board should ensure that there is no dominance by one person, again paragraph 4.2 and in doing so should collectively meet its obligations (paragraph 4.3). The board as a whole should have the final authority within the corporation, see paragraph 4.4. The effectiveness of a board should be supported by its structures and processes see paragraph 4.21.

The Report also suggests that the way to achieve this is to have well defined procedures for the board. The board should meet regularly, paragraph 4.23, and should have a formal schedule of matters for their collective decision, again paragraph 4.23. The Report provides guidance on the management of transactions suggesting there should be clear rules to determine materiality for any transaction and establish clearly which transactions require multiple board signatures, see paragraph 4.24.

Obviously it is important that there should well defined committees of the board such as an audit committee, a remuneration committee and nomination committee.

2.4.3.2 Hampel Report

The Hampel Report adopted a principled approach rather than issuing guidelines. The report argues that a principled approach is better to apply in the practices. Hence the prime responsibility of the board is to determine the broad strategy and to ensure its implementation.

The Hampel Report requires that every listed company should be headed by an effective board, which should lead and control the company, see paragraph 2I. It also suggested that combination of chairman and CEO role in one individual needs to be explained publicly, paragraph 2II. (Clearly whilst not outlawing combination the feeling is that the roles generally should not be assumed to be combined without very

good reason.) The Board should include a balance of executive directors and non-executive directors (NED) paragraph 2III. The report states that it is difficult for them to be effective if NEDs make up less than one third of the board, paragraph 3.14. The board should be supplied in a timely fashion with information in a form and of a quality appropriate to enable it to discharge its duties, paragraph 2 IV.

There should be a formal and transparent procedure for the appointment of new directors to the boards paragraph 2V. All directors should be required to submit themselves for re-election at regular intervals and at least every three years, paragraph 2VI.

As with the Cadbury Report, the Hampel Report suggest that it is only possible to fulfil its responsibilities if it meet regularly and reasonably often.

2.4.4 On Non-Executive Directors (NED)

2.4.4.1 Cadbury Report

The Cadbury Report has the view that non-executive director bring judgement and experience to the Board. Especially independence of judgement is treated as an essential quality. The views of NED should carry significant weight in the board decisions (paragraph, 4.11). All boards require a minimum of three non-executive directors (paragraph 4.11). The majority of non-executives on a board should be independent of the company.

Non-executive directors have two important contributions to make to governance process as a consequence of their independence from executive responsibility (paragraph 4.4). They should review the performance of the boards and of the executive (paragraph 4.5) and take the lead where potential conflicts of interest arise (paragraph 4.6)

For the NED to be effective then they need to have the same rights as other executive directors and the board should regularly review the form and the extent of the information (paragraph 4.14)

2.4.4.2 Hampel Report

Hampel Committee finds that the monitoring function of NEDs had been overemphasised since the Cadbury Report. Hence it tends to suggest that NEDs are normally appointed for the contribution to the development of the company strategy (paragraph 3.8). The generally accepted functions of the non-executive director are strategic and monitoring function (paragraph 3.8). For the small companies, NEDs may contribute expertise not otherwise available to management, or NEDs may act as mentors to inexperienced executives (paragraph 3.8).

Again the Hampel report stresses that there should be a sufficient number of non-executive directors, a majority of them independent and seem to be independent; and that these individuals should be able both to work co-operatively with their executive colleagues and to demonstrate objectivity and robust independence of judgement when necessary (paragraph 2.5).

2.4.5 On Reporting

Cadbury report emphasised director integrity and board effectiveness in producing a good quality financial report to users. The Cadbury Report recommended that all quoted companies should establish internal board sub-committees. The Report argued that audit committees were an additional control mechanism that ensured that shareholder interests were being safeguarded. These promoted the effective financial management of the company and hence increasing accountability (Cadbury, 1992). Table 2.5 details the statements in the reports about financial reporting.

Table 2.5: Financial reporting according to the reports

Cadbury Report (1992)	Hampel Report(1998)	Combined Report(1998)
4.2 The board should ensure that an objective and professional relationship is maintained with the auditors 4.3 The board should establish an audit committee of at least three non-executive directors. 4.4 The director should explain their responsibility for preparing the accounts next to a statement by the auditors 4.5 The director should report on the effectiveness of thee company's system of internal control. 4.6 The directors should report that the business is a going concern, with supporting assumptions or qualifications as necessary	It is suggested that the audit committee should keep under review the overall financial relationship between the company and its auditos to ensure a balance between the maintenance of objectivity and value for money	D11 The directors should explain their responsibility for preparing the accounts, and there should be a statement by the auditors about their reporting responsibilities. D12 The board's responsibility to present a balanced and understandable assessment extends to interim and other price-sensitive public reports and reports to regulators as well as to information required to be presented by statutory requirements. D13 The director should report that the business is a going concern, with supporting assumptions or qualifications as necessary. D31 The board should establish an audit committee of at least three directors, all non-executive, with written terms of reference which deal clearly with its authority and duties. D21 The director should, at least annually, conduct a review of the effectiveness of the group's system of internal control and should report to shareholders that they have done so. The review should cover all controls, including financial, operational and compliance control and risk management.

2.5. Corporate Governance theory and Codes

2.5.1 Introduction

There is a need to examine the relationship between the different theories of corporate governance and the codes developed by the reports. This examination will enhance our understanding of the UK Code and provide some insight how the UK Codes reflect the theory. Each theory has emphasis different aspects. Donaldson and Davis (1991) raise the issues of the right theory for the right phenomena. They argue that the important thing is not to assume of superiority one theory over other theories, but to accept the validity of a theory for a given phenomena.

Table 2.6: The relationship between theory, interest and resolution

Theory	Interest	Solving the conflict
Inherent property right	Owners and managers have different interests	Regulation
Managerial Hegemony		Ownership, Appointment process
Agency theory		Contract, Market
The financial theory		No intervention to market
The myopic market theory		Less intervene to managers
Resource dependency		Improving networking
Stewardship theory	Owners and managers share interests	Manager independence
Social entity theory	The public contain different interest	Public intervention
The pluralistic model	Stakeholder have different interest	Consideration of stakeholder
The trusteeship model	Stakeholder have different interest	Consideration of stakeholder

The Codes document primary the role of the board, which include the function and appointing process of the directors. Hung (1998)'s typology gave useful guideline to analyse the relationship between the theory and codes. Hung (1998) classifies roles of the boards and matched with board theory. Figure 2.3 shows the relationship between the function of the board and the theory. Also the figure shows that no single theory can explain the process of the board.

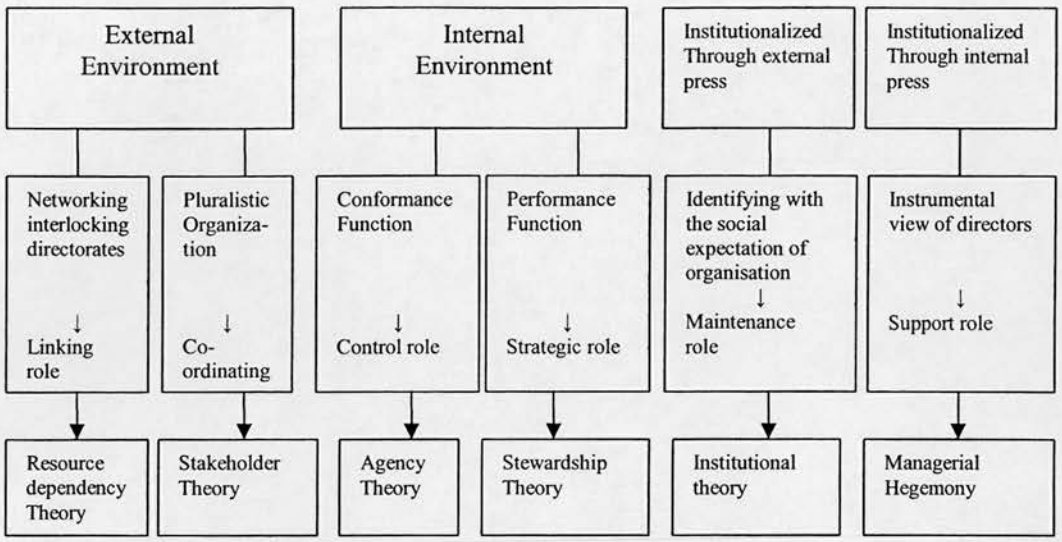


Figure 2.3: Hung's typology of relationship between codes and theory, Hung (1998)

2.5.2 The shareholder perspective of the Codes

2.5.2.1 Inherent property rights theory

The Inherent property rights theory argues that since shareholders are the owner of the corporation, the managers have a fiduciary duty to act in the interest of shareholders. Cadbury Report documents the right of the shareholders as owners of the company to elect the directors to run the business on their behalf and hold them account for its process (paragraph 6.1).

In relation to the function of the Board, the theory views the Board as enhancing performance of the companies by carrying out its legal duty being the selection of Chief Executive Officer (CEO), representing shareholder interests, monitoring managerial and corporation performance.

Cadbury Report states the legal duty of directors as to act in good faith in the interest of the company and to exercise care and skill (paragraph 3.2). These legal duties are from the common law (paragraph 3.2).

Zahra and Pearce (1989) suggest that there are five reasons why it is hard to conclude that the view actually dominates corporate governance in board theory. It ignores the role of the Board in developing and implementing strategy. Most empirical studies explore only the impact of the Board's composition not the shareholders, which is often considered too diffuse to encompass in empirical studies. Consideration of the shareholders position would require an acceptable definition of shareholders wealth and so far no consensual measure has evolved. When considering the Board even the role of CEO in Board has not been studied in a systematic fashion. Many studies make the assumption that there is a direct link between Board attributes and corporation performance, which Zahra and Pearce (1989) felt was over emphasised.

2.5.2.2 Managerial Hegemony

Managerial hegemony theory represents the phenomenon of the modern large corporation. The management have the control of the company. The Cadbury and Hampel Report both are attempts to challenge the managerial dominance reality. For they recommend the increasing number of the outside directors and the transparency of the selection processes.

Cadbury Report recommends the calibre and number of non-executive that should be on the board and that all boards require a minimum of three non-executive directors (paragraph 4.11). Hampel Report stresses that the board should include a balance of director and non-executive directors (paragraph III).

For the selection process, Cadbury Report recommends that there should be a formal selection process, and stresses that the non-executive must be appointed on merit and not by any form of patronage (paragraph 4.15). Hampel Report also emphasis the transparent process (paragraph 3.19).

2.5.2.3 Agency theory

Agency theory is the dominant theory in corporate governance studies. Agency theory sees corporate governance as means to ensure managers act for the interest of the shareholders. Investigating the role of the Board in achieving the goals of the

shareholders, then it is the Boards' critical roles of monitoring and rewarding management to ensure maximise shareholder's interests. In this model of control then agency theory supports separation of the CEO and Chairman roles, rather than the duality of a single individual being CEO and Chairman.

Taking it further agency theory support the idea that boards should be dominated by outside directors to increase the board's independence from management (Heracleous, 2001). Independent non-executive within the board increases the effectiveness of the board through the direct monitoring and sanctions (Robert el al. 2005), without the confounding of roles of monitor and monitored. Reducing agency cost and maximizing shareholder wealth are the key role of the board. This leads to the emphasis on performance. Therefore the remuneration should be based on firm performance. Cadbury Report recommended that the role of the chairman and CEO are separated, and there should be independent element on the board. Cadbury Report state two important contributions of the Non Executive Directors are to make the governance process independent from executive responsibility (paragraph 4.4). They should review the performance of the boards and of the executive (paragraph 4.5) and take the lead where potential conflicts of interest arise (paragraph 4.6).

2.5.2.4 The myopic market model

During the 1980s, there had been a critical attitude toward Anglo-American corporate governance system due to its poor performance. As mentioned in the theory part, the criticism is toward fund managers and corporate raiders. The Cadbury Report though, supports the UK corporate governance system (paragraph 1.7). Instead of replacing the system, Cadbury Report strengthens the system (paragraph 1.7) by way of emphasis of monitoring role of the directors. In regard to Cadbury Report, Terry (1993) states that 'the guilt has shifted from institutional shareholders to directors'.

Hampel Report documents directors' duty to shareholders both present and future (paragraph 1.18). Therefore the report holds that as the shareholders are interested in a company's sustained prosperity, the director can pursue the objective of long-term shareholder value.

2.5.2.5 Stewardship theory

Contrary to agency theory, this theory views the main function of the boards is not to ensure management compliance to shareholders' value, but to improve performance by strategic decision making and working with management. Stewardship theory views the role of board member as collaborating and mentoring (Huse, 2005).

Cadbury Report states the responsibility of the board, which include setting the company's strategic aims and providing the leadership to put them into effects (paragraph 2.5). Hampel Report also accepts the strategy role of the board as the prime responsibility. (paragraph 3.11) Under this view, CEO duality is considered as fostering strong and unified leadership (Heracleous, 2001). The steward theory views that empowering managers is necessary to maximise corporate returns.

Boyd (1996) criticized Cadbury Report for its narrow concept of managerial accountability. Drennan el al. (2001) documents that this narrow concept made the report fail to provide wide issues of ethics and responsibility in the board.

Hampel Report holds that the basic legal duty of directors is to act in good faith in the interests of the company and to exercise care and skill (paragraph 3.2)

2.5.2.6 Resources theory

Resource theory gives the foundation for director's resource role. The view that non-executive director brings judgement and experience to the Board are based on resources theory. Blair and Stout (2001) state that directors' responsibility is not only to shareholder value maximization but also they serve other stakeholders. This point suggests that director need discretion in allocating resources. This is as analogous to resources theory (Daily et al, 2003).

The executive and non-executive directors contribute in different ways: 'executive directors, with their intimate knowledge of the business, and of non-executive directors, who can bring a broader view to the company's activity, under a chairman who accept the duties and responsibilities which the post entails.'(Cadbury Report,

paragraph 4.1). The NEDs should have sufficient influence to affect the board's decisions. In the report the statement made is 'the board should include non-executive directors of sufficient calibre and number for their views to carry significant weight in the board decisions' (Cadbury Report, paragraph 4.11). NEDs are normally appointed for the contribution to the development of the company strategy (Hampel Report, paragraph 3.8)

For the small companies, NEDs may contribute expertise not otherwise available to management, or NEDs may act as mentors to inexperienced executives (Hampel Report, paragraph 3.8). The diversity of the NED makes a real contribution on the board (Hampel Report, paragraph 3.15).

2.5.3 The stakeholder perspective of the Codes

Hampel Report dismissed the stakeholder notions (Tricker 1998), documenting that 'The directors as a board are responsible for relations with stakeholders; but they are accountable to the shareholders' (paragraph 1.17). Even the Report states that company need to develop relationship with employees, customers, suppliers, creditor providers, local communities, but this relationship is only for shareholder interest. (paragraph 1.16).

2.6 Conclusion

Broadly there are two approaches to the corporate governance: the shareholding and stakeholding approaches. Shareholder view of corporate governance has argued that corporation should run for shareholder and controlled by shareholders.

The shareholders views also have diverse theory based on how to enforce corporate governance. Inherent property right theory is the legal approach and became the ground of the company law. Managerial Hegamony theory represents the modern view of large companies in USA and UK. The theory argues that manager actually control the company. Agency theory is the main stream of current corporate

governance studies. Agency theory argues the conflict of interest between shareholder and managers, and provides mechanism to reduce the conflict. The financial theory is the branch of the agency theory and emphasis the role of the financial market. The myopic market theory pointed the weakness of current corporate governance, which is seeking short-term results. The Stewardship theory has different assumption about managers. The managers are no longer the self-interest seeker, but other motivation, such as responsibility and honour, contributes their effort for the companies. The resource-dependence theory sees the outside directors as provider of the resources of the experience and expertise.

The stakeholder perspective has different views on those topics. On the issue of the owner idea, the stakeholder advocates state that all stakeholders have some stake in addition to shareholders. On the management accountability issue, the stakeholder advocates asserts that managers should accountable for its decision. The residual risks of shareholders are doubted from the stakeholder perspectives. The social entity theory sees the company as public associations; therefore the role of public service is more important than shareholder value. The pluralistic model takes into consideration of multiple stakeholders' interest. The trusteeship model sees managers as trustee of the company in the perspective of the stakeholder theory.

In relation to corporate governance theory and UK Code, the shareholder perspectivc has a majority portion of the Code. But the Codes have adapted various theories as the Code has developed. The Cadbury Report includes agency theory and resource theory. Yet the Hampel Report includes agency theory, the myopic market theory, steward theory, resource theory and managerial hegemony theory.

CHAPTER 3
RISK MANAGING ASPECT OF CORPORATE GOVERNANCE

3.0 Introduction

There are two aspects of the link between corporate governance and risk management: corporate governance as a risk and risk management in corporate governance. The first aspect is that corporate governance can be another key factor that can affect firm risks. Corporate governance failure, such as Enron, has raised the concern for board structure, directors and chief executive officers. Johnson et al. (2000) states that corporate governance variables have better explanatory power than macroeconomic variables when measuring of firm risks. So changes in governance structure may influence the firm's risk. The decision process of the boards and management can also affect the firm's risk. The second aspect is that corporate governance requires a good risk management system. Risk exists around all the company's activities. Unnecessary risk should be reduced or avoided. Therefore risk management is a key element in the control and manage the company. Risk management can add value to the company. Kaen (2004) state that 'the connection between risk management and corporate governance can be made through asking how risk management creates value for the owners of the company and ensure that managers manage the company in the best interests of the shareholders'. Therefore risk management in this view is essential for the maximization of shareholder values and reducing the probability of financial failures.

Corporate governance is set by each nation's political and economical situation. In this sense, the risk management processes are also affected by those conditions. Risk management is a combination process of structure and decision. In UK the corporate governance codes provided the structure of risk management. This is particularly true of the 1990s the period when the series of reports where published. This chapter explores the relationship between corporate governance and risk management, the role of codes as risk management tools, and the role of participant in the corporate governance in the contexts of 1990s in the UK.

3.1 Corporate Governance and Risk Management

3.1.1 Risks

Risk is a term, which is ill defined. It frequently depends on the context being considered and so general definitions are hard to come up with. As Renn (1998) states, there is no commonly accepted definition for the term risk, neither in the science nor in the public understanding. There is, though, a common understanding of aspects of risk for example Renn (1998) asserts that the definition of risk contains three elements: outcomes that affect human value, possibility of occurrence (uncertainty) and a formula to combine both elements. Some people think in terms of harm and the chance of the harm and frequently in finance expected loss.

In the financial risk literature, the risks are grouped based on the risk sources. Crouhy et al. (2006) divided the risk into market risk, credit risk, liquidity risk, operational risk, legal and regulatory risk, business risk, strategic risk, and reputation risk. The market risk, the risk due to the changes in financial market, contains interest-rate risk, equity price risk, foreign exchange risk and commodity price risk. Credit risk is the risk of changing the credit quality of the counterparty. Liquidity risk is the lack of cash convertible or lack of transaction possibility. Operational risks are from the management failure, fraud and human error. Legal and regulatory risk related to the changes of the law and regulation. Business risk is the risk from shortage of demand, the changes of prices, and the cost changes. The strategic risk is the risk from the significant investment or major board decisions. Reputation risk is related to the reputation of the company. Many firms consider the reputation risk is related to brand value of the company.

3.1.2 Risk managing process

To implement a process, it needs to break down into and examine the part. Ansell (2005) classified risk management into four steps: Awareness, Assessing, Evaluating and Reducing.

Awareness is having knowledge of being informed about. Being aware is the starting point for the risk management. Ansell (2005) states that 'awareness of risk is accepting something may go happen and may lead to harm'. Limitation of our knowledge and social constructed world-view affect the ability and scope of awareness. Assessing the risk is the quantification of risk (Ansell, 2005). He states there numerous ways to assess risk and most depend on context. Risk evaluation is the judgement of whether a risk is accepted or not. It is regarded as setting the criteria for what is tolerable within a society (Ansell, 2005). The inclusion of society in decision leads to political issues in risk management. Managing risk may aim to reduce the risk. Several activities can reduce the risk: gain information, change behaviour, reduce likelihood, plan recovery and insure against the risk (Ansell, 2005).

3.1.3 Tradition of UK risk management approach

3.1.3.1 Tolerability and as low as reasonably practical (ALARP).

Two principles have been applied to risk management in UK: tolerability and as low as reasonably practical (ALARP). The concept of tolerability is adopted by Health and Safety Executive (HSE). Ansell (2005) explain that tolerability means the ability to live with a risk to secure the benefit from the risk assuming that the risk is being properly controlled. ALARP means that 'the quantum of risk is placed in one scale and the sacrifice involved in the measures necessary for averting the risk is placed in the other, and that it be shown that there is a gross disproportion between them – the risk being insignificant in relation to the sacrifice- the defendant discharge the onus on them' (Fife and Machim, 1976).

3.1.3.2 A self-regulation approach

UK has the tradition of minimizing government intervention in corporate governance. Charkham (2005) explain the tradition by stating that the fundamental British attitude is that freedom is the natural state that should be guarded against government. Whittington (1993) reports that 'the oldest and most pervasive form of regulation is self-regulation by accountants, auditors or other prepares of financial information.

This has typically been done by professional bodies in the interests of facilitating the work of their members. Kirkbride and Letza (2003) argue that the City introduced a take-over code of practice in the 1960s in response of fears of government intervene.

Contrast to self-regulation approach, a prescriptive approach is to promulgate regulations for all risks known to the regulator (Greuning and Bratanovic, 2003). Drennan (2004) states more robust regulation and the introduction of codes of corporate governance may reduce the risk. Yet the risk of prescriptive approach is that regulation become outdated and cannot prevent the new type of risk.

Self-regulation has many advantages. The experts within the corporation involved can adapt the spirit of the regulation to fit the particular circumstances of the organisation, see Cheffins (1997) and Coyle (2004). Usually this means that the regulations get more rapidly implemented and can be flexible to reflect potential changes (Cheffins, 1997). As Coyle (2004) points out self-regulation avoids 'box ticking' or compliance pursuit, and organisations need to think about the regulations as it pertains to them.

The downsides are also fairly obvious. Self-regulation will mean that regulations will be applied with insufficient coherence and hence will not provide co-ordination of policy and practice over time, see Cheffins (1997). Also Cheffins suggests there are the problems of setting, monitoring, and enforcing of compliance with the extra-legal codes.

An approach to corporate governance in UK is 'comply or explain' approach. This approach is the avoidance of prescriptive rules. This approach does not require to comply with the Codes, but have to explain why the company does not comply the codes. This approach is supported by Higgs (2003) who states 'I do not presume 'a one size fits all' approach to governance is appropriate'.

3.2 Risk managing role of Corporation Governance Codes

3.2.1 Introduction

As indicated before risk management and corporate governance are closely intertwined. This is reinforced by Figure 3.1, which shows the relations with the public, the city and the firm.

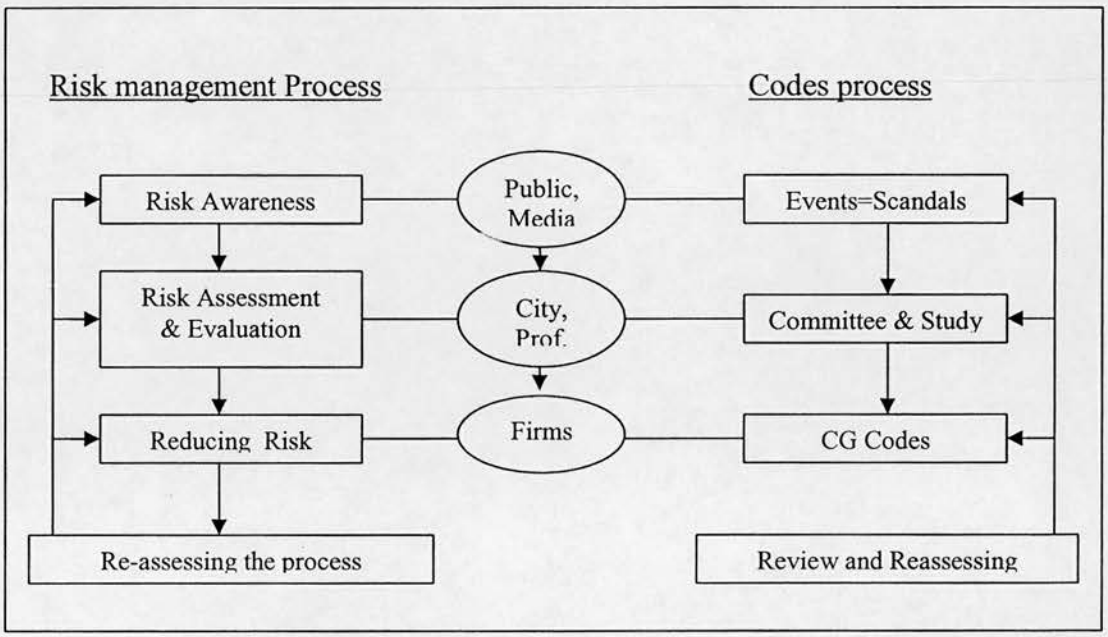


Figure 3.1 - Comparison of risk management and Corporate Governance Codes

3.2.2 Risk Awareness

3.2.2.1 Cadbury Report

Awareness of risk is the ability to accept something may go happen and may lead to harm. The Cadbury Report can be seen as a response to a set of scandals arising from business failure. These include: Polly Peck, Maxwell Communications Corporations and the misuse of pension funds and Bank of Credit and Commerce International (BCCI). Public concerned about the UK corporate governance structure. Under these

situations, the motivations of the various codes have primarily stemmed from coverage in the media of events.

The financial stakeholders, accounting and legal professionals realised the business threat initially. Financial Reporting Council was concerned about the reporting quality in the major cases of failure and The Stock Exchange was concerned about the reputation of the City (Jones and Pollitt, 2001). The Accountancy profession was concerned about the potential liability of auditors and about losing its self-regulating role' (Napier, 1992).

Many features could be attributed to the causes of corporate collapse and these included the lack of inside information on reporting (such as company risk information), one dominant man, the lack of business ethics and the inability of boards to restrain the dominant power, see Rosen (2003), Drennan (2004) and Coyle (2004). Gray (1991) identified common characteristics from the causes of company scandals: a dominant leader, inability of non-executive and little involvement with institutional investors. Horwood (2001) suggested the common elements of the business failures were questionable transactions, lack of effective control, few dominant CEOs, weak boards of directors and over optimistic financial reporting.

Cadbury (1998) attributed the governance problems to a decline in the shared values in the City, which based on the self-interest of the membership by maintaining the reputation of the City. The values were broken by a series of momentous changes such as the expansion of the London's financial service sector in the 1980s. Many new entrants to the City did not share the values of City club rules.

Drennan and Beck (2001) state that 'Cadbury Report identified the looseness of accounting standards, the absence of a clear framework for ensuring that directors kept under review the controls in the business, and competitive pressures on companies and auditors, as the cause of the governance breakdown'.

3.2.2.2. Greenbury Report

Greenbury Report was a response to the large pay rises in many executives in privatised utilities, which were highlighted by the newspaper, pension funds, and Labour Party (Jones and Pollitt, 2001). Greenbury Report states that large pay increases and large gains from share options in the recently privatised utilities industry increased the concern of public and shareholders (paragraph 1.6).

This public concern embarrassed the unpopular government (Jones and Pollitt, 2001). The Deputy Prime Minister was concerned about the distance the government was from the issue and hence put pressure on the CBI (Confederation of British Industry) to look into the matter (White el al, 1994). This process explains that the Greenbury Report was triggered by the government's realisation of the potential political fall out. 'Government reacted to the events due to political reality' (Jones and Pollitt, 2001).

3.2.3. Risk Assessment & Evaluation

3.2.3.1 Cadbury Report

Risk assessment is the quantification of the risk, and risk evaluation is the judgement whether a risk is acceptable or not.

Cadbury Report believed that the basic system of corporate governance in Britain was sound (paragraph 1.7). Thus, UK did not need major changes in the governance structure, or massive government and regulatory interference in corporations. Based on this judgement the Report want to strengthen the unitary board system and increase its effectiveness, not to replace it (paragraph 1.8). The Report recognizes that no system can eliminate the whole risk (paragraph 1.9), therefore they adopted compliance with a voluntary code instead of a statutory code (paragraph 1.10). This approach follows traditional UK self-regulatory approach. The Report documents that statutory approach would be a greater risk of the boards complying with the letter, rather than with the spirit of the requirement (paragraph 1.10).

3.2.3.2 Greenbury Report

Greenbury Report also documents that most UK companies deal with Director' remuneration in a sensible and responsible way, by showing evidence that payment to directors in UK lies within the range of the European practice and below American levels (paragraph 1.9). Even the report states simply the issues as 'mistakes and mis-judgements' (paragraph 1.11). Based on this evaluation, the Report also rejected the statutory controls; by stating that it would be at best unnecessary, at worst harmful (paragraph 1.13).

3.2.4 Reducing Risk

3.2.4.1 Cadbury Report

Cadbury committee tried to provide reassurance to the public on financial reporting. The primary approach by the committee is setting the principle of the balances and checks. For this, the report recommended that at least three independent non-executive directors on the board split of chief executive and chairman, audit committee reviews the internal control systems. This recommendation may prevent one person's dominance in the board.

Also internally the report stresses the importance of risk management in the board. Boards should have a formal schedule of matters specifically reserved to them for their collective decisions, to ensure that the direction and control of the company remains firmly in their hands and as a safeguard against misjudgements and possible illegal practices. A schedule of these matters should be given to directors on appointment and should be kept up to date. Such schedule would include risk management policy (paragraphs 4.23 and 4.24).

Directors should make a statement in the report and accounts on the effectiveness of their system of internal control and the auditor should report thereon (paragraph 4.32). An effective internal control system is an essential part of the efficient management of a company (paragraph 5.16). The accountancy profession take the lead in developing

criteria for assessing effectiveness and in developing guidance both for directors and auditors to assist in reporting on internal control (paragraph 5.16).

3.2.4.2 Greenbury Report

The report stressed that Boards should set up remuneration committees of non-executive directors and the accountability and full disclosure of directors' remuneration.

3.2.5. Review and Reassessing: Hampel Report (1998)

The Hampel Committee was set up to review of corporate governance practices. The report reviews the Cadbury code and its implication, and pursues any relevant matters arising from the Greenbury report (paragraph 1.6)

3.2.5.1 Risk Awareness

There were public debates on the importance of business prosperity and accountability. The emphasis on accountability tends to obscure the board's responsibility for business prosperity (paragraph 1.1). These debates brought the high possibility of legislation on corporate governance (Lewis and Wighton, 1996).

3.2.5.2 Risk Assessment

The report states that implementation of the Cadbury and Greenbury Report has led to higher standards of governance and greater awareness of their importance, (paragraph 1.8).

It had been believed that the codes have been treated as a set of prescriptive rules (paragraph 1.12). The focus for shareholders and managers was whether the codes had been complied with. This led to a 'box ticking' approach (paragraph 1.12). Hampel Report called this method to guideline approach. The issue of guideline approach is 'How far are they complied with? (paragraph 2.1).

The Hampel Report opposed the 'box-ticking' approach by stating that there are no universally valid answers on such points (paragraph 1.13). Instead the Report adopted principled approaches. This approach asks 'How are they applied in practice?' in the particular circumstances (paragraph 2.1).

3.2.5.3 Risk management

Drennan et al (2001) argue that Hampel Report highlighted the role of risk management to board members not simply in preventing loss but rather in ensuring the security and profitability of the firms. Kirkbride and Letza(2003) argue, though, that 'Hampel Report was not clear on how the board was best able to deliver good internal control and risk management'.

The board should maintain a sound system of internal control to safeguard shareholders' investment and the company assets. This covers not only financial controls but operational and compliance controls, and risk management, since there is potential threats to shareholder's investment in each of these areas, (paragraph 2.20)

3.3 Corporate Government Participants in Risk Managing

3.3.1 Risk managing role of the CG participants

According to Greuning and Bratanovic (2003) and Crouhy et al. (2006) the roles of the stakeholders in managing the risk cane are defined as:

- Shareholders: Appoint fit and proper boards, management
- Boards: Ultimate responsibility for the firms and responsible for overseeing management and holding it accountable
- Audit Committee / Internal auditors: Test compliance with board policies. Provide assurance regarding control systems, risk management process.
- Managers: Implement board policies
- External auditor: Express opinion on financial statement

- Regulators: Provide guidance and methods and implementation of risk management.

3.3.2 Shareholders

3.3.2.1 Risk of Shareholders

The shareholders take a risk by investing in the company. Given the variability in share price this may be a high risk. Diversification is a method to manage such a risk. A portfolio of shares may reduce the overall risk but any single investment may provide a low return. The shareholders also face the residual risk and this gives them the control of this risk, which will be achieved through monitoring. Obviously the stakeholder view would question this position. There is a risk of opportunistic behaviour by management. In theory shareholders have the right to elect the boards and to approve the board decisions, but their influence may be diffused by them acting individually rather than collectively and so it becomes hard to exercise their power.

3.3.2.2 Change of UK Shareholders

Table 3.1 Ownership of UK equities 1963-1999 (percent of total equity owned at end-year)

	1963	1975	1981	1989	1991	1992	1999
Pension funds	6.4	16.8	26.7	30.6	31.3	35.1	19.6
Insurance companies	10.0	15.9	20.5	18.6	20.8	16.7	21.6
Unit trusts	1.3	4.1	3.6	5.9	5.7	6.2	2.7
Investment trusts and others	11.3	10.5	6.8	2.7	2.3	2.5	7.0
Banks	1.3	0.7	0.3	0.7	0.2	0.5	1.0
Total financial institutions	**30.3**	**48.0**	**57.9**	**58.5**	**60.3**	**61.0**	**51.9**
Individuals	54.0	37.5	28.2	20.6	19.9	20.4	15.3
Private non-financial firms	5.1	3.0	5.1	3.8	3.3	1.8	2.2
Rest of world	7.0	5.6	3.6	12.8	12.8	13.1	29.3
Charities etc	2.1	2.3	2.2	2.3	2.4	1.9	1.2
Public sectors	1.5	3.6	3.0	2.0	1.3	1.8	0.1
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Office for National Statistics, 2000.

Over the 1960s-1990s individual equity ownership has continued to decrease in terms of the total percentage of equity owned from 54 per cent in 1963 to 15.3 per cent in 1999.

The proportion of total equity held by institutional shareholder has increased during the 1980s. In Table 3.1, the financial institutions consist of pension funds, insurance companies, unit trusts, investment trusts and others, and banks. The primary increase in institutional ownership is due to pension funds. In 1963, they owned only 6.4%, but increased to 16.8% in 1975, and reached to more than 30% after year 1989. In 1999, there is increased percentage in the investment from overseas. The details are shown in Table 3.1, which illustrated the trends of globalisation and internationalisation in a portfolio of investors.

3.3.2.3 Risk managing role of UK Shareholders

Investors, in theory, can reduce their risk by portfolio. Therefore most investors may not need to monitor the board. This situation is supported by Short and Keasey (1995). They state that ' there is much anecdotal evidence to suggest that institutional shareholders do not adopt a monitoring role, preferring to sell their holdings in problem companies rather than intervening in the management of that company'. They gave three explanations for institution's inactive monitoring stances. First, if they intervene publicly, it becomes bad news to the market. Second, if they are involved in the management, they become privy to inside information and unable to trade the shares resulting in their loss. Third, effective monitoring is costly in terms of time and money.

Recently there are changing attitudes of the institutional investors. Cheffins (1997) reports 'institutional investors have recently began to work more actively towards promoting the long-term operating success of the companies. Fund managers have become more keen to meet with company executives, to voice their dissatisfaction with board decisions with which they disagree and to support managerial shake-ups in underperforming companies'.

Compared to US institutions UK institutions are more active in their monitoring, see Black and Coffee (1994), Davies et al. (2002). The results may due to the informal coalition of institutional investors in UK. Short and Keasey (1999) reports that UK institutions monitor companies by expressing their views privately, taking joint action to curb managerial excesses without public attention. Also they report that 'the nature of the City of London means that institutional shareholders are in physical close proximity to each other, which aids the formulation of informal coalition'.

3.3.3 Creditor

3.3.3.1 Risk of Creditors

The major creditor in a company can be classified into three types: trade creditor, institutional lender, and other creditors. The trade creditors supply goods and service to companies and so, provide credit to the company. The institutional lenders, mostly banks, provide short-term lending underlining overdrafts. Other creditors are those who have right to receive payment over a period of years, such as debentures.

A creditor faces the possibility that a corporation may breach its obligation to pay back the principle and interest. Whilst a creditor has priority over the shareholders when corporation defaults, if a corporation's debts exceed its assets, all creditors cannot receive payment in full. Creditors also face the problem of high dividend payments to shareholders, which erodes the creditors' position, and increases the risk of default. To reduce this risk, creditors often include dividend policy restriction in debt contract. Among the creditors, the activities of banks are regulated by governments. Then the regulation directly affect to the lending to company.

3.3.3.2 Change of UK Creditors

Banks in UK provide large portion of financial sources for UK industrial companies. Table 3.2, from Clarkham (1994), shows that banks had been a major finance source in UK. Much corporate borrowing is done on a short-term basis, using overdraft (Cheffins, 1997).

Table 3.2: Sources of finances for UK industrial companies

Year	Total (£ billion)	Internal Sources (%)	External Sources (%)			
			Bank borrowing	Ordinary shares	Other capital issues	Other sources
1979	33.4	76	12	3		9
1980	29.0	66	22	3	3	6
1981	33.2	64	17	5	4	10
1982	29.4	62	23	4	1	10
1983	33.7	76	5	6	3	10
1984	34.8	80	20	3	3	-6
1985	44.3	68	17	8	6	1
1986	47.9	57	19	11	7	6
1987	70.7	49	17	19	8	7
1988	86.2	41	36	5	7	11
1989	89.8	31	37	2	15	15
1990	66.7	37	28	4	14	17

Source: Clarkham (1994)

3.3.3.3 Risk management role of UK Creditors

Charkham (1992) reports that UK banks do not often take much equity stakes to secure influence or to have relationship with corporation. Table 3.3 illustrated the bank ownership, from a report on the ownership of shares at 31st December 1999, Office for National Statistics, (2000). Over the whole period the banks have owned less than 1% on average. He also reports that the bank's indifference toward the role of corporate governance in UK compared to other countries where the banks played a much larger part in the development of industry.

Table 3.3: Bank Ownership of UK equities 1963-1999 (percent of total equity owned at end-year)

Year	1963	1975	1981	1989	1991	1992	1999
Bank ownership	1.3	0.7	0.3	0.7	0.2	0.5	1.0

Those figure shows the stance of UK Bank that the banks consider equity stakes a poor use of funds and unnecessary for a relationship with clients. Also the bank wants to avoid a conflict of interest between their role as lender and their role as shareholders. Keeping this stance, the banks reduce the risks (Charkham, 1992).

Citron (1992) reports that UK bank use financial ratio covenants and reporting covenants to secure the loan. Among the financial ratio covenant, interest cover and gearing covenant are the most widely used. The reporting covenants specify the type of financial statement and accounting techniques in the company report. With the violation of those covenants, the banks have the right to accelerate repayment of the loan. Therefore the covenants used to restrict companies financial policies.

3.3.4 Boards

3.3.4.1 Risk of Boards

Boards have legal authority to control and direct company. They can fire the chief executive and other senior managers. They also have influence over the running of the business through asking questions, putting issues on an agenda, commissioning reports, conducting performance appraisals of the CEO, communicating via company journals, see Hiller (1993). Lorsch and Maclver (1989) advocate the board should: implement an annual review of CEO based on mutually agreed goals and based on company performance. They should also annually review of corporate strategy and annually appraise the health of the organisation.

There is clearly a reputation risk associated with the management of a corporation. If reputation does poorly the blame may be laid on the Board. There are also legal risks a Board is subject to. Cheffins (1997) indicates that the directors of Insolvent Corporation may be subject to legal restraints such as disqualification if it is proved that the Board has engaged in wrongful trading. The Board may also put the shareholders interest in jeopardy by borrowing since there is no restriction in UK in law on how much fund the directors can borrow for the company (Coyle, 2004).

3.3.4.2 Changes of UK Boards

During the 1990s, there had been changes in the composition of the board. The detailed changes will be discussed in the analysis chapter.

3.3.4.3. Risk management role of the Boards

The board has the responsibility of control of the management, but the control function may be varied depend on the situation and structures. Lorsch and MacIver (1989) report three factors that affect the board's role: their confidence in and relationship with the CEO, the company's performance history and the complexity of the company. Hart (1995) criticise two aspects of the boards. First, he argue that how can the executive director monitor the boards because they are also the member of the board. Second, he raises the possibility that non-executive director may not perform the monitoring well for three reasons: (a) they have no incentive (b) they have little time to deal with the company affairs (c) they may owe their position to management.

Boards have significant role of risk management in both approving risk management policy and overseeing the risk management process. Boards have the responsibility to identify, evaluate and control all risks related to companies. Risk management is difficult to implement and monitor. The problems of risk management in boards are whether the directors have the ability to assess the risk and to select the right tools.

The Company Act 1985 requires company to have at least two directors (section 282). The duties of the director in the Act are preparing annual account (section 227) and laying and delivering annual accounts (section 243). Coyle (2004) states the responsibility of the board of directors as looking after the assets of their company and protecting the value of the shareholders' investment. He also argues that the board of directors should be responsible for ensuring all risks are managed properly.

Cadbury Report and Hampel Report also document the risk management function of the Board. Those two reports provide the guidelines and principles of the implicit risk management. Cadbury Report documents that boards should have a formal schedule of risk management policies for their collective decision (paragraph 4.23), and directors have responsibilities to maintain internal control system over the financial management of the company (paragraph 4.31). As the title of the Cadbury Report indicates, the report mainly deals with the financial control of the company. For this reason, the report emphasises internal control, audit committee and internal audit. These checks and balances are the tools of the risk management in the report. Hampel

Report extended the risk management concepts of the Cadbury Report. In addition to financial risk management, the Hampel Report included business risk too (paragraph 6.13)

3.3.5 Management

3.3.5.1 Risk of management

If the management is forced to leave office this will damage their reputation in the labour markets. The management can protect their reputation by attempting to maximise the financial performance and stock price of the corporation, but as Enron has shown there is a need to do this in an appropriate fashion. Manipulation of accounting practices can lead to greater legal risks.

3.3.5.2 Changes of the management

The main change of the 1990s is the separation of the chief executive office and chairman. How the separation has proceeded will be studied in the analysis chapter.

3.3.5.3 Risk management role of management

There are several reasons for managing risk. The primary reason for managing the risk is to reduce the costs either directly or indirectly to the corporation. Corporations hedge the risk in order to reduce the cost of bankruptcy. By reducing volatility of the income or expenses, the bankruptcy possibility can be reduced and therefore the expected costs of financial distress are reduced (Smith and Stulz, 1985). Froot, Scharfstein and Stein (1993) argue that risk management can reduce the under investment problem, which arises from conflict from between bondholders and shareholders. Based on agency theory, the manager have already invested their human capital in the firm, thus the agent is risk averse (Deumes, 2003). Ellstrand, Tihanyi and Johnson (2002) argue that reducing risk can be advantage to the management: the less risk the more their job are secure, less risk leads to more certain

rewards. Therefore managers need risk management to secure their jobs and their commitment to firms.

Managers are responsible for designing and implementing the risk management. Sobel (2004) states that risk management is most effective when: The chief executive officer is committed to the process. Other functional officers manage the risks under their jurisdiction and Unit managers assume everyday responsibility under their control.

3.3.6 Regulators

3.3.6.1 Risk of Regulation

Coyle (2004) raised three issues: (a) the extent to which corporate governance practices should be regulated (b) how much should be left to regulation by the stock market regulators (c) how much corporate governance is a matter for companies to decide for themselves.

3.3.6.2 Development of UK Company Act

Requirements for the formation and operation of companies are in the Companies Act. Following UK Company Act development shows the typical prescriptive approach. The Companies Act 1862 formalised creation and trading of the joint stock company (Higginson, 2002). The Companies Act 1948 set out detailed financial reporting requirements for companies (Ryan el al. 2002). The Companies Act 1985 was more proscriptive over the powers of bodies within the company. It gave shareholder the power to proceeding to court to prevent the company from doing something ultra vires, section 35 (2), petition the court for the unfairly prejudicial to some or all of its member, Section 459, the 10% of the voting shares can call an extraordinary general meeting, Section 368 and right to remove a director from office in general meeting, Section 303. It also proscribed the action of directors requiring them to notify the company the number of the shares he/she hold in either the company or its parent

company, Section 324, and the company to enter the information in a register of directors' interests, Section 325.

3.3.6.3 Development of UK Accounting regulations

The regulatory body is an organisation making rules and principles. There have been a number of bodies, which have commented over time on accounting regulation:

- 1941: The Cohen Committee - to consider reform of the Company Acts
- 1942: The issue of Recommendations on Accounting Principles by ICAEW, until 1969. The recommendation is self-regulation, which aims to improve the quality of the reporting by professional body (Whittington, 1993)
- 1970: The Accounting Standards Steering Committee (ASSC)
    - ASSC is ' a more formal body which exposed its views to public comment by all interested parties, including those outside the accountancy profession' (Whittington, 1993)
    - The objectives of the ASSC were damage limitation, the development of a consensus, encourage disclosure and improve standards (Elliott and Elliott, 2005)
- 1976: The Accounting Standards Committee (ASC)
    - The Accounting Standards Steering Committee (ASSC) was renamed to ASC.
    - The ASC was charged with defining accounting concepts, narrowing differences in accounting practice and formulating best practice (O'Regan, 2001)
    - The ASC ceased to exist in 1990 when it was replaced by ASB
- 1988: The Dearing Committee and The Dearing Report
    - The Dearing report triggered the reform for standard setting process (Huijgen and Lubberink, 2003)
    - The Dearing Committee was set up to review the standard setting process and recommended the setting of FRC, ASB, UITF, and FRRP
- 1990: Financial Reporting Council (FRC), responsible for giving ASB guidance on priorities and advising it on areas of public concern.

- Accounting Standards Board (ASB), responsible for issuing mandatory standards such as SSAP (Statement of Standard Accounting Practice) and FRS (Financial Reporting Standards).
- Financial Reporting Review panel (FRRP), examine departure from standards by large companies.
- Professional Oversight Board for Accountancy
- Auditing Practice Board
- Accountancy Investigation and Discipline Boards
- Urgent Issues Task Force (UITF), amend or expand on suddenly needed standard

3.3.6.4 Risk management of UK regulations

La Porta et al. (1998) reported that English legal regime offer the best investor protection. In theory and legal terms, shareholders have control power over the corporations. The mandatory takeover threshold 30% rule is a tight rule that makes UK management less threatened by market control.

There is slightly more protection for UK managers than those in USA, according to Seetharaman et al. (2002). In the UK, the plaintiffs must prove that manager owed the plaintiffs, while in US the legal principle of fraud on the market gives the investor the right to sue even when the investor had not read the financial statements. Facing the legal cost if one loses also deters parties from suing in UK. Unlike the USA class actions are difficult to organise in UK.

3.4 Conclusion

The 1990s was a changing period in term of corporate governance in UK. The society became more sensitive to the risk. This made them more professionals at risk management; therefore they initiated the Codes to assure the public. The Code, then, influenced to the companies, especially facilitate the changes of the boards. This study expects that these changes have impact the risk management aspect of corporate

governance. The changes may impact on the decision processes of the company, and then the result may appear in the company reporting.

There are several participants in risk management: shareholders, creditors, Boards, Managements, and regulations. For the enterprise risk management, the systematic efforts of all participants are necessary. The shareholders, especially the role of the institutional shareholders are required recently. The bank loans restrict company financial policy by contracts. Board and management have the role of risk management and the roles are enforced by the Cadbury Reports.

CHAPTER 4
OWNERSHIP, BOARD AND PERFORMANCE

4.0 Introduction

Obviously the stakeholders of a company may have different views on the risk they face given their interests. The shareholders clearly require the managers to protect their interest in the company, possibly both short-term and long-term. They would generally view the role of corporate governance to ensure alignment of the managers with the protection of the shareholders' interest. For a company the prime risk may be avoiding bankruptcy, but also it ensuring adequate returns on investment either through optimal action either in investment, decision-making or capital budgeting. Those with higher incomes are less likely to default and clearly the interest of the shareholders is being served. An alternative would be to use a measure such as Tobin's Q, (Equity Capitalisation plus Total Liability divided by Total Assets). Such performance measure can be used as a indicator for risk.

After the Cadbury Report, the board structure has changed: the separation of Chairman and Chief Executive Office, the increasing number of the outsider directors. The debate about board-change and performance has continued since 1992 in UK. In addition to UK corporate governance codes, ownership composition is a key determinant of governance structure and decision processes (Dallas, 2004). Since Berle and Means (1932), the ownership is an important issue in management studies.

This chapter reviews the interaction between ownership, board structure and performance. The topic on ownership and performance is divided into three parts: separation of ownership and control, managerial ownership and performance, and institutional ownership and performance. The study on board structure and performance are consists of two parts: board and performance, duality and performance. The last section evaluates the performance study in corporate governance.

4.1 Development of Ownership models

Three separate models of ownership can be explored as illustrated in Figure 4.1: the private model, the Berle-Means Basic Model and Revised Berle-Means Model, see Berle and Means (1932) and Bliar (1995).

In the private model, a single individual or small number of shareholders own all shares. Jensen and Meckling (1996) state that agency costs can be reduced through one single owner-manager. In this case, they have control of both the legal powers of ownership and can make use of powers, especially as they can elect and dominate the management (Berle and Means, 1932).

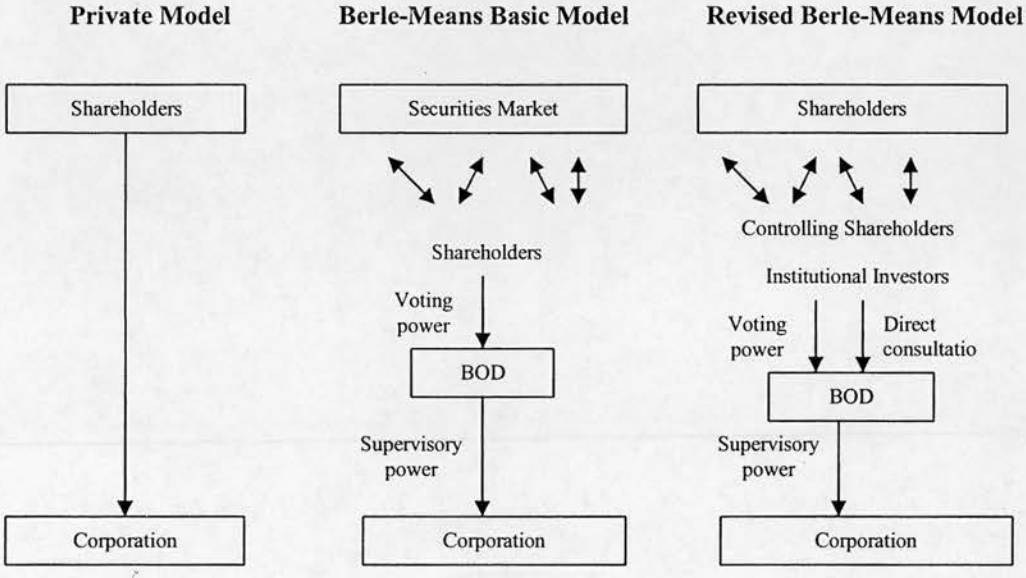


Figure 4.1 Three Ownership Models

The Berle-Means Basic Model represents the widely dispersed shareholdings where there is no single dominant shareholder to exercise a strong discipline on management. The separation of ownership and control bring about the agency problem between shareholders and management. In the conditions of Berle-Means model, it is difficult to expect shareholders to control the corporation. The shareholders have to pay more in costs than the benefit they receive for monitoring. Hence shareholders should leave it to management to take control.

The Berle-Means Basic Model cannot be applied in every country. The model may be regarded as rather rare in the current context.

La Porta el al. (1999) report that most large companies have a controlling shareholder or shareholders. Frank and Mayer (1997) reported that most European countries ownership is concentrated, for example 85% of non-financial companies in Germany have at least one shareholder with 25% of the total share in 1990. Also the presence of institutional investors invalidated the basic Berle and Means analysis (Charkham, 1994).

In such circumstances the revised model may be more appropriate. If there is a majority shareholder then they will be able to exercise their influence and hence the control of the company will be straightforward. The large shareholders may have an interest in active monitoring.

There is a diversity of view about the relationship between ownership structure and performance. Mostly the studies report that ownership structure affects corporate value (Jensen and Meckling, 1976: Stulz, 1988).

4.2 Institutional ownership and performance

4.2.1 Changes in institutional ownership

In UK, the share percentage of individual shareholders has declined from 54% in 1963 to 15.3% in 1999, while the share percentage of institutional investors has increased 30.3% in 1963 to 51.9% in 1999, see Table 4.1, from ONS (2000) reported by Charkham (2005).

Table 4.1: Private and institution shareholders of UK equities 1963-1999 (percent of total equity owned at end-year)

Year	1963	1975	1981	1989	1991	1992	1999
Individuals	54.0	37.5	28.2	20.6	19.9	20.4	15.3
Institution	30.3	48.0	57.9	58.5	60.3	61.0	51.9

The institutional investment in UK is higher than in USA, Van Der Elst (2000) provides the composition of ownership in 1990 and 1998 in Table 4.2. It highlights the differing ownership by institutional in five categories: insurance companies, pension funds, unit trusts, investment trusts and bank, as well as other groups of owners. To provide comparison USA figures are also given.

As Faccio and Lasfer (1999) point out UK Institutional investors are the largest category of shareholders, whilst in the US it is individual investors. There is no legal restriction on stock ownership in UK whilst there is in US, and this extends into the legal barriers to shareholder activisms, which is low in UK and high in USA.

Table 4.2: Composition of USA and UK Institutional Investment.

	USA		UK	
	1990	1998	1990	1998
Banks	5.4	3.4	0.7	0.1
Insurance	5.0	6.0	20.4	23.5
Pension fund	24.2	24.0	31.6	22.1
Investment fund	7.1	16.3	7.7	10.6
sum	41.7	49.7	60.4	56.3
Individuals	50.8	41.9	20.3	16.5
Companies			2.8	1.2
Public Auth			2.0	
Foreigners	7.0	7.2	12.0	24.0

Cadbury Report (1992) expects the institution's monitoring role, stating that 'Because of their collective stake, we look to the institutions in particular, with the backing of the Institutional Shareholders' Committee, to use their influence as owners to ensure that the companies in which they have invested comply with the Code' (para.6.16).

4.2.2 Characteristic of institutional shareholders

Institutional investors have been accused of short-term investment. The main reason behind the short-term investment of institutions is the performance evaluation of the fund managers. Cheffins(1997) states that 'institutional shareholders tend not to vote on resolutions put forward at shareholder general

meetings. Since the typical general meeting is carried out with fund managers or representatives not being present, the exercise has been labelled Hamlet without the prince'. Brickley et al. (1997) state that the greatest opposition by institution when management-initiated anti-takeover amendments reduce shareholder value, and reported that fund management institutions are more likely to oppose management than bank and insurance institutions. They regarded the fund management institutions as less subject to management influence than bank and insurance institutions.

4.2.3 Institutional shareholders and firm performance

Short and Keasey (1997) report that the relationship between the large shareholder and firm performance is inconclusive, but Denis and Denis (1994) found no relationship between performance and shareholder patterns. This is partially reinforced by McConnell and Servaes (1990) who discover that blockholders do not have a significant effect on performance alone, but when blockholder and director ownership is combined there are significant relationships.

McConnell and Servaes (1990, 1995) report that institutional shareholder is positively related to performance measured by Tobin's Q. A high value of Tobin's Q indicates that more value has been added or there is an expectation of great future cash flow. Chaganti and Damanpour (1991) report that institutional ownership have a positive effect on the return on equity, but not on the return on assets, price earning ratio and total stock return. Short and Keasey (1995) report that institutional ownership has a positive effect on performance only when there were no other large external shareholders.

4.3 Managerial ownership and performance

4.3.1 Introduction

It is arguable whether the holding of share by management is a motive to increase shareholder value. Jensen and Meckling (1976) state that management shareholder reduce the agency cost and increase the shareholder values. Each study has different terms of ownership: inside ownership, see Demsetz and Lehn (1985), Morck et al. (1988), Hermalin and Weisbach (1991), managerial ownership see, Palia and Lichtenberg (1999), Cho (1998)

4.3.2 US Studies

Demsetz and Lehn (1985) find that there are no cross-sectional relationship between accounting rates of return and the concentration of shareholdings on firm performance. Morck et al. (1988), using 371 Fortune 500 firms for the year 1980, though, find that inside ownership has a positive effect on firm value up to 5% and above 25% managerial share holdings, but negative between 5% and 25% holdings. Hermalin and Weisbach (1991) discover a non-linear relation between inside share holdings and firm performance. Agrawal and Knoeber (1996) report that there is non-linear relation between inside shareholding and firm performance in the single OLS regression, but the relation is statistically insignificant in the simultaneous equation. Palia and Lichtenberg (1999), using 255 firms for the period of 1982-1993, find that managerial ownership changes are positively related to changes in productivity. Cho (1998) reported that managerial ownership has no causal effect on corporate value, but that managers in firms with higher Tobin's Q may tend to have higher portion of the their firms share.

4.3.3 UK Studies

Short and Keasey (1999), using UK data during 1988 to 1992, report that the performance of firm, measured by return on equity, is positive in the 0% to

15.58% of manager ownership, negative in the 15.58% to 41.8%, and positive when the managers' ownership exceed 41.8%.

Faccio and Lasfer(1999), using UK data, find that managers become entrenched when they hold more than 12% of the shares in the companies by controlling the board. They are less likely to split the role of the CEO and the chairman, to appoint non-executives as a chairman, to have a large proportion of non-executives on the board and to have large boards. Davies el al. (2002), using UK data both 1996 and 1997, report that Tobin's Q increase when the managerial ownership level up to 7% and then decrease to up to 26%. Vafeas and Theodorou (1998) report percentage of stock ownership by executives is unrelated to performance.

4.4 Board Structure and Performance

4.4.1 Boards

Fama and Jensen (1983) argue that effective boards have to be composed of outside directors. Hermalin and Weisbach (1988, 1991) support the view of Fama and Jensen (1983) when they suggest the main factor affecting board's effectiveness is its independence from the CEO. Also Denis (2001) states two conditions for an effective governance mechanism: First is narrowing gap of interest between managers and shareholders and second is the ability to contribute to firm performance and value. Beekes et al. (2004) require two pre conditions for outside director to be effective as monitors. There should be sufficient incentive to monitor performance and sufficient expertises amongst them. Board size is related to directors' ability to monitor and control the managers. Many researchers report the positive aspect of large number of board members. Klein (2002b) states that larger boards increase monitoring due to the spread of work-load among directors.

The Cadbury Report sparked the debate within the UK. The report states "The country's economy depends on the drive and efficiency of its companies. Thus the effectiveness with which their boards discharge their responsibilities determines Britain's competitive position". The remark stresses the relationship between board effectiveness and firm performance. When boards are effective the firms in UK may be more likely be competitive.

Cadbury Report, though, contends that board effectiveness come from the separation of power. The report's confidence in separation of power may base on Fama and Jensen's (1983) evidence. Implementing the recommendations of the Cadbury Report is not compulsory, but the London Stock Exchange requires all listed companies registered in the UK to state whether they are complying with the code and if not to supply the reason for any areas of non-compliance.

4.4.2 Board and firm performance

A study of the relationship between board and performance has to take a view about the likely effect of the independence of the board of directors. For example, one could assume that the board becomes more independent and hence more effective in monitoring as the number of the outside directors increases. The empirical evidence on the monitoring role of the board is inconclusive.

4.4.2.1 US Studies

Yermack (1996) finds negative relationship between board's size and three financial ratios; sales over assets, return on assets, and return on sales, using data from 1984-1991 for 452 large public corporation. Dalton et al. (1998) find that the board composition has no effect on performance. Agrawal and Knoeber (1996) find a negative relationship between the proportion of outside directors and Tobin's Q, using 385 samples firms in 1983-1987 year data. They regard the fraction of outsides on the boards as an internal decision, so they expect the composition of board to maximise firm value. This result was a 'puzzle' for them.

Their explanation of this result is that more outsiders on the board reduce firm performance since they are added to boards for political reasons not to enhance performance.

Bhagat and Black (2001) report a negative relationship between the proportion of independent directors and performance, using 928 large US public companies for 1988-1990 and 1991-1993. Even they state that 'there are hints that greater board independence may impair firm performance'.

4.4.2.2 UK Studies

Vafeas and Theodorou (1998), using regression analysis with 250 UK quoted firms for the fiscal year 1994, find that both the percentage of non-executive directors and percentage of independent non-executive are not significantly related to performance. Also percentage of stock ownership by executives is unrelated to performance. In simultaneous equation analysis, there is a negative relationship between the percentage of non-executive directors and director ownership. They used MB (equity capitalisation +total liabilities, all divided by total assets) and ROA (return on assets) as performance measures.

Laing and Weir (1999), using 115 UK quoted firms (excluding financial companies) for the fiscal year 1992 and 1995, found that firms with fewer than 50 percent non-executive directors perform better than firms with more than 50 percent non-executive directors both year in 1992 and 1995. They are discovered that firms with at least three non-executive directors do not perform better than those with less than three in 1995 data. Their research concludes that the governance structures based on Cadbury Report have not brought better performance. Laing and Weir (1999) suggested several reasons for the unsatisfactory results.

Weir and Laing (2000)'s study, using 200 non-financial, fully quoted UK companies for the fiscal year of 1992 and 1995, report that the result of Return On Assets (ROA) indicates that firms with separation do not perform better than firms

with duality. Firms with at least three non-executive directors have negative relation in 1992 (statistically not significant), negative and significant in 1995, being measured with ROA.. Also increasing the number of non-executive has a negative impact on performance. The research shows that the results depend on performance measure. Accounting performance is negatively related to outside director representation, while market return is positively related to variable. Weir and Laing (2000) state that economic cycle may have impact on the performance rather the structure of governance mechanism. They suggest further research topic, pointing three issues; time lag between changing the governance structure and seeing an effect on corporate performance, characteristics of board and its commitment and processes of corporate governance.

Weir, Laing and McKnight's (2002) OLS regression, using 200 UK quoted firms (excluding financial companies) for the fiscal year 1994 and 1996, show that the proportion of non-executive directors has an insignificant effect on performance, but the independence of non-executive directors is positive and significant at 5 % level. Their results using logistic regression indicate that a weak relation between the internal governance relationship and performance. The conclusion of this section is that previous research, whether UK or USA, indicates empirically that there is little relationship between performance and board structure. There may be a number of conflicting effects arising within specific firms which cloud the over-all effect. It argues almost for individual studies of firm performance, which might be too specific to be generally rewarding.

4.4.3 Duality and Performance

Duality means the CEO of the firms has two roles simultaneously: CEO and chair-person. When studying the relationship with performance a summary would be that for USA data Pi and Timme (1993) show positive relationship, Baliga, Moyer and Rao (1996) no significant effect, Brickly, Coles and Jarrell (1997) mixed outcome and Dalton et al. (1998) a positive effect. So again the results are not

very conclusive. For UK again slightly different results dependent on year of study Weir and Laing (1999) find no harm but not any improvement, and Weir and Laing (2000) finds effect not significant

4.4.3.1 US Studies

Baliga, Moyer and Rao (1996) explore three different aspect, announcement, impact on returns and difference in duality, using 181 industrial firms over the period 1986 to 1991. The announcement of changes in managerial structure from duality to non-duality seems insignificant based on 37 firms. There were no significant differences in cumulative average excess returns over 2 day, 5 day, 10 day and 60 day of announcement effects. There is no evidence of significant changes in the return of equity (ROE), return on assets (ROA), operating cash flows to sales (OCF/Sales), and operating cash flows to assets ratios (OCF/TA), measured as ratio value 2 years after change in the duality status. There is no difference in performance between firms with non-duality and firms with duality measured by MVE over the 1986- 1991 periods. In conclusion, duality changes have no impact on performance.

Pi and Timme (1993) state positive relationship between non-duality and performance. Using a yearly average of 112 US banks, they document that the ROA for the duality group is 18 basis points less than the ROA for the non-duality group. They also argue that the duality group shows 73 basis points less in cost efficient than the non-duality group.

Brickly, Coles and Jarrell (1997) study broadly the leadership structures in boards, using 628 firms for 1988 and 1989-1991. In 1988 data, firms with duality show higher in return on capital than firms with separated positions. In 1989-1991 data, both firms are the same return in capital. For stock return, though, firms with separation position have higher in stock return than firms with duality.

4.4.3.2 UK Studies

Laing and Weir (1999), using 115 UK quoted firms (excluding financial companies) for the fiscal year 1992 and 1995, compared the mean difference using Mann Whitney test due to non-normal distribution of return on assets across the governance variables. Firms with duality show higher ROA than firms with non-duality in 1992. By 1995 firms without duality were performing better. Both cases have no significant difference in statistically. Firms moving from duality to non-duality performed worse, while changing non-executive firms show a little better performance. The differences are not significant

Weir and Laing (2000), using: 200 non-financial, fully quoted UK companies for the fiscal year of 1992 and 1995, documents the result that firms with separation do not perform better than firms with duality. In OLS regression, firms with duality show negative coefficients both 1992 and 1995.

Heracleous (2001) summarized the possible explanation of failing to support best practice in corporate governance through performance. First possibility is that best practices in corporate governance have no relevance to performance (Johnson, Daily and Ellstrand, 1996). The second possibility is the assumption of board vigilance is not valid. Usually proportion or numbers of outside directors are used as a proxy for board vigilance. Heracleous (2001) argue that other factors such as personality and a sense of duty is more important to measure board vigilance, though, might be more difficult to measure these aspects. The third possibility is that performance was affected by many other factors, which may obscure the effects due to the board attribute. If there is an effect it is swamped by other effects. For example Roberts et al. (2005) argue that actual board effectiveness depend on the dynamics of a board, and the interaction between executive and non-executives. The fourth possibility is that different organisation requires different board characteristics. This indicates that the general adoption of Cadbury Report is not appropriate for all firms.

4.5. Conclusion

The studies report that there are diversity results on ownership-performance relationships. No relationship or inconclusive results are reported when used large shareholders and blockholder shareholders (Short and Keasey, 1997); Holderness and Sheehan, 1988; Murali and Welch, 1989; Denis and Denis, 1994).

A positive relationship between institutional shareholder and performance is reported (McConnell and Servaes, 1990 & 1995; Chaganti and Damanpour, 1991; Short and Keasey, 1995). Also many researchers report non-linear relationship between managerial ownership and performance (Morck et al., 1988; Hermalin and Weisbach, 1991, Agrawal and Knoeber, 1996; Palia and Lichtenberg, 1999; Short and Keasey ,1999; Faccio and Lasfer, 1999).

Most studies on boards and performance in UK seek to explore the relationship between duality and performance or outside executive director and performance. The results of the studies are inconsistent. Researchers need to understand better the board dynamics. There exists other important influence on performance, or it may be that other elements obscure the relationship between performance and either duality or independence, some may even contradict the relationship.

CHAPTER 5
RISK MODELS AND RISK STUDIES

5.0 Introduction

To explore further firm risk there is a need for appropriate measures of risk and this Chapter will consider the range of possible measures that can be used to assess risk. There are several models that can be used to assess the risk of a corporation.

One way of assessing how the risky of a corporation is to assess how close it is to bankruptcy and hence a number of models exist for the assessing the likelihood of bankruptcy. Aziz and Dar (2004) suggested three categories of model; Statistical, Artificial Intelligence and Theoretical models. The Statistical model are, according to Aziz and Dar (2004), Univariate Analysis, Multiple Discriminant Analysis, Linear Probability Models, Logistic Models, Probit Models, Cumulative Sums procedures and Partial Adjustment Process. Artificially Intelligent Models comprise: Expert System Models, Recursively Partitioned Decision Trees, Case-based Reasoning model, Neural Networks, Genetic Algorithms, Rough Set Models. The Theoretical Models are more eclectic and include Balance Sheet Decomposition Measures, Gambler's Ruin theory, Cash management theory, Credit Risk Theories (Merton model, KMV model).

Aziz and Dar (2004) report that 64% of previous studies used statistical models, 25% of them used Artificially Intelligent Models and 11% of them used Theoretical models. Among the statistical models used 77% used MDA model or Logit model. They also report the accuracy rate of the models: Credit model (Merton type models) 91%, MDA 86% and Logit (including logistic) 87%. It, therefore, seems natural to concentrate discussion on the more common models MDA, Logit Analysis, and Credit Model.

The main division is between models based on accounting measures and financial statements and those based on share-price. Typical of the former are approaches such as linear discriminant models, logistic analysis and expert systems and neural

networks. Typical of the latter are Capital Asset Pricing Models, CAPM, and models based on option theory developed by Merton (1974). Besides describing the model the Chapter will assess the effectiveness of the model and evaluate the use of the models in the study of risk.

5.1 Models with Multiple Discriminant Analysis (MDA)

5.1.1 Multivariate Discriminant Analysis (MDA)

MDA is a method that examines whether a set of variables ($X_1 \ldots X_n$) is capable of distinguishing between the two groups. Usually MDA is actually Linear Discriminant Analysis (LDA). The LDA searches for a linear combination of the discriminating variables in such a way that two groups are maximally distinguished. t is the discriminant function defined as $t = k_1X_1 + k_2X_2 + \ldots + k_pX_p$, where k_i is a coefficient chosen to maximise the discrimination. It can also be described as

$$T - \overline{T} = k_1(X_1 - \overline{X}_1) + k_2(X_2 - \overline{X}_2) + \ldots + k_p(X_p - \overline{X}_p)$$

Altman (1968) states the advantages of the MDA are that it can consider a broad range of common characteristics, which may be relevant firm distress, as well as the interaction of these characteristics. MDA reduce the analyst's space dimension, from the number of different independent variables to G-1, where G equals the number of original a priori groups.

Ohlson (1980) criticised the MDA. He suggests that it imposed distributional restrictions on the underlying populations (usually the normal distribution), though, the approach is reasonable robust. It assumes also the same variance-covariance matrices for the population, but it can be generalised to Quadratic Discriminant Analysis (QDA) to overcome this problem. (QDA is often found to have poor discriminating powers than LDA). The output of the MDA model is t, a score, which Ohlson (1980) suggests has little intuitive interpretation. There are concerns over the

matching procedures, which have been used in MDA. This model has formed the basis of many models Altman Models (1968, 1977) and Taffler (1983, 1984). These will now be discussed.

5.1.2 Altman Model (1968)

5.1.2.1 Z-score Model (1968)

Altman (1968) used 66 manufacturing corporations with 33 bankruptcy firms and 33 non-bankruptcy firms, data between 1946 and 1965. The paired samples are chosen on a stratified basis; by industry and by size. The non-bankruptcy firms are the firms, which were still in existence at the time of the analysis. Data were from the same year as those compiled for the bankruptcy. Among initial 22 variables (ratios) five were selected as the highest predictive power ratios. The variables are classified into five categories: liquidity, profitability, leverage, solvency and activity. The Z-model is shown in following equation. Altman (2003) states that the following model does not contain a constant term due to the particular software utilized. Therefore the relevant cut-off score between the two groups is not zero.

$$Z= .012\ X_1 + .014X_2 + .033\ X_3 + 0.006\ X_4 + .999\ X_5 \qquad \text{(Equation 5.1.1)}$$

where variables are defined as follows:

- X_1 is working capital / total assets; working capital is the difference between current assets and current liabilities. A firms with consistent operation losses have shrinking current assets in relation to total assets.
- X_2 is retained earnings / total assets; this ratio reflects the age of a firm. The younger the firm's age, the more likely the firm fail.
- X_3 is earning before interest and taxes /total assets; It is a measure of the true productivity of the firm's assets. This ratio is justified by its earning power of its assets.

- X_4 is market value equity / book value of total liabilities; The measure show how much the firm's assets can decline in value before the liabilities exceed the assets and the firms become insolvent.
- X_5 is sales / total assets; This measure management's capability in dealing with competitive condition

The following Table 5.1, taken from Altman (1968), show the relative contribution of each variable to the total discriminating power of the function. The scaled vectors indicate the degree of contribution. X_3 (earning before interest and taxes /total assets) contributes the most and X_5 (sales / total assets) is next to X_3.

Table 5.1: Discriminating Power of the Variables

variable	Scaled Vector	Ranking
X_1	3.29	5
X_2	6.04	4
X_3	9.89	1
X_4	7.42	3
X_5	8.41	2

Altman (1968) performed six tests to establish the best model. The initial test shows 95% accuracy in classification. The second test is used two year prior to bankruptcy. It shows reduction in the accuracy (83%). The third test is for the check the potential bias and validation techniques. Using five different subset of the original sample, the percentage of the correct classification is calculated (93.5%). The fourth test introduced new 24 bankruptcy sample. The results show higher classification accuracy (96%). The fifth test used manufactory firms with losses in 1958 or 1961; the result shows high type II errors. The final test is for long-range predictive accuracy. The results show the accuracy of prediction decrease with 3 year prior to bankruptcy. Details are given in Table 5.2

Table 5.2: Altman's results using Z-score

Sample	Error	Number Correct	Percent correct	Percent Error	n
(1) Initial sample	Type I	31	94	6	33
	Type II	32	97	3	33
	Total	63	95	5	66
(2) Two year prior to bankruptcy	Type I	23	72	28	32
	Type II	31	94	6	33
	Total	54	83	17	65
(3) Potential Bias and Validation Techniques	Average		93.5		34
(4) New 25 bankrupt firms	Type I	24	96	4	25
(5) Manufacturing firm with losses in 1958, or 1961	Type II	52	79	21	66
(6) Long-range predictive accuracy	1st	31	94		33
	2nd	23	72		32
	3rd	14	48		29
	4th	8	29		28
	5th	9	36		25

Altman generalize that all firms with Z scores greater than 2.99 belong to the non-bankrupt group, while firms with Z score less than 1.81 went bankrupt. Therefore the cut-off point has more information than that of actual Z-score itself (Agarwal and Taffler, 2003). Altman (2003) performed three subsequent tests with data from 1969-1975, 1976-1995, and 1997-1999. Table 5.3 shows an accuracy level of between 82% and 94%, but Altman documents that the Type II error has increased by as much as 20% of all the firms.

Table 5.3: Altman's results for z-score over 1969 to 1999

	1969-1975	1976-1995	1997-1999
Year prior to failure	Distressed	bankruptcy	bankruptcy
1	82%	85%	94%
2	68%	75%	74%

* Using 2.67 as cut-off score

Altman (2003) compares the Z-Score with the bond rating from 1995-1999. His findings are presented in Table 5.4.

Table 5.4: Comparison of Z-Score with bond rating

	Average annual number of Firms	Average –Z-Score	Standard Deviation
AAA	66	6.20	2.06
AA	194	4.73	2.36
A	519	3.74	2.29
BBB	530	2.81	1.48
BB	538	2.38	1.85
B	390	1.80	1.91
CCC	10	0.33	1.16

5.1.2.2 ZETA Model (1977)

Using the same approach Altman, Haldeman, and Narayanan (1977) presented a new model which included other variables to enhancement the discriminating power. The list of variables used was:

- X_1 is EBIT / total assets
- X_2 is a normalized measure of the standard error of estimate around a 5 to 10 year trend of earnings
- X_3 is EBIT / total interest payment
- X_4 is Retained Earnings / total assets
- X_5 is Current assets / Current Liabilities
- X_6 is Five year average of total market value / total capital
- X_7 is Total assets

5.1.3 Taffler's model (1983, 1984)

MDA is the most widely used failure prediction techniques in UK. Taffler used the approach in two papers Taffler (1983, 1984). The list of variables in the 1984 model 1984 was:

- X_1 is profit before tax / current liabilities
- X_2 is current assets / total liabilities
- X_3 is current liabilities /total assets
- X_4 is No-credit interval in days

5.2. Models with Logit analysis

5.2.1 Logit Analysis

The logit model weighs the financial ratios, and creates a score, and the score can be transformed to probability.

$$P_i = \frac{1}{1+e^{-(\alpha+\beta x_i)}}, \qquad \text{(Equation 5.2.1)}$$

where, P_i is probability of failure for firm i, α is the intercept, β is slope, **X** are the explanatory variables

Ohlson (1984) claims that Logit avoids all the problems in MDA and there is no assumption needed regarding prior probabilities of bankruptcy.

5.2.2 Ohlson Model (1980)

Ohlson (1980) established three models using conditional logit analysis. The three models are estimated based on 105 bankrupt firms and 2,058 non-bankrupt firms using the data between 1970 and 1976. The variables selected are based on the most frequently mentioned in the literature, consisting of nine variables, which were:

- X_1 (Size) is log (total assets / GNP price level index)
- X_2 (TLTA) is Total liabilities / total assets
- X_3 (WCTA) is working capital / total assets
- X_4 (CLCA) is Current liabilities /current assets
- X_5 (NITA) is Net income / total assets
- X_6 (FUTL) is Funds provided by operations / total liabilities
- X_7 (INTTWO) is (1=if net income was negative for the last two years, 0= otherwise)
- X_8 (OENEG) is (1= if total liabilities > total assets, 0= otherwise)
- X_9 (CHIN) is (Net Income $_t$ – Net Income $_{t-1}$)/(|Net Income $_t$| + | Net Income $_{t-1}$|)

Three sets of estimates were computed for the logit model; Model 1 predicts bankruptcy within one year, Model 2 predicts bankruptcy within two year and Model 3 predicts bankruptcy within one or two year. The estimates of the coefficient he obtained are given in Table 5.5

Table 5.5: Estimates of the Coefficient for the Three Models.

Model 1	SIZE	TLTA	WCTA	CLCA	NITA	FUTL	INTWO	OENEG	CHIN	CONST
estimates	-.407	6.03	-1.43	.0757	-2.37	-1.83	0.285	-1.72	-.521	-1.32
t-statistics	-3.78	6.61	-1.89	.761	-1.85	-2.36	0.812	-2.45	-2.21	-.97
Model 2										
estimates	-0.52	4.76	-1.71	-.297	-2.74	-2.18	-0.78	-1.98	0.421	1.84
t-statistics	-5.34	5.46	-1.74	-.733	-1.80	-2.73	-1.92	-2.42	2.10	1.38
Model 3										
estimates	-.478	5.29	-0.99	0.62	-4.62	-2.25	-0.521	-1.91	0.212	1.13
t-statistics	-6.23	7.72	-1.74	0.738	-3.60	-3.42	-1.73	-3.11	1.30	1.15

The overall measure of the models performance is given in Table 5.6.

Table 5.6: Overall measures of model performance

	Likelihood Ratio Index	Percent Correctly Predicted	Cut-ff point
Model 1	0.8388	96.12	0.5
Model 2	0.7970	95.55	0.5
Model 3	0.719	92.84	0.5

5.3. Merton-type model

Black, Scholes, and Merton provided a general framework for valuing contingent claims.

5.3.1. Option model

The important paper on option pricing was Black-Scholes (1973). It provided a method based on Ito calculation. Black-Scholes (1973) arranged following a differential equation and boundary condition from the stock-option hedging position;

$$w_2 = rw - rxw_1 - \tfrac{1}{2} v^2 x^2 w_{11}$$

$$w(x, t^*) = x\text{-}c, \quad x \geq c$$
$$= 0, \quad x < c$$

They calculated value of call option

$$W(x, t) = x\, N(d_1) - ce^{r(t-t^*)}N(d_2) \qquad \text{(Equation 5.3.1)}$$

$$d_1 = \frac{\ln(\frac{x}{c}) + (r + 0.5v^2)(t^* - t)}{v\sqrt{t^* - t}},$$

$$d_1 = \frac{\ln(\frac{x}{c}) + (r - 0.5v^2)(t^* - t)}{v\sqrt{t^* - t}},$$

w(x, t) is the value of option, x is stock price, c is exercise price, t* is the maturity date of the option, v^2 is the variance rate of the return on the stock, N(d) is the cumulative normal density function

5.3.2 Merton (1974) Model of risky debt

The work of Black-Scholes on option pricing led Merton (1974) to suggest a model for assessing the risk of bankruptcy on the basis of share price for list corporations. Merton (1974) provides the ground to value the debt based on the company's asset value and volatility.

The Merton model assumes that equity of a levered firm is a European call option on the value of the assets of the firms. The strike price of the call option is equal to the face value of the firm liabilities. At time T, maturity time, the lenders are paid the promised amount and the shareholders receive the residuals if the value of the firm assets exceeds what the firm owes its creditors at debt maturity. If the asset value is less than the promised payment the firm will default on the debt.

Merton (1974) draw the equation for the market value of risky debt, $F(\tau)$

$$F(\tau) = Be^{-i\tau}[(1/d)N(h_1) + N(h_2)] \qquad \text{(Equation 5.3.2.1)}$$

τ is the length of time remaining to loan maturity; that is, τ =T-t, where T is the maturity date, and t is current time, d is the firm's leverage ration measured as $Be^{-i\tau}$/A, where the market value of debt is valued, N(h) is a value computed from the standardized normal distribution. h_1= -[½ $\sigma^2\tau$ - ln (d)]/ $\sigma\sqrt{\tau}$ h_2= -[½ $\sigma^2\tau$ + ln (d)]/ $\sigma\sqrt{\tau}$, where σ^2 is the asset risk of the borrower.

Merton (1974) also writes the equation 5.3.2.1 in terms of a yield spread equation 5.3.3.2.

$$k(\tau) - i = (-1/\tau)\ln[N(h_2) + (1/d)N(h_1)] \qquad \text{(Equation 5.3.2.2)}$$

where k(τ) is the required yield on risky debt, ln is natural logarithm, i is the risk-free rate on debt of equivalent maturity

5.3.3 KMV Model

KMV model focuses on measuring default risk. The model was developed by KMV Corporation which utilized Merton's model (Bharath and Shumway, 2004). The market value of equity (V_E) can be represent by the value of call option that use assets value (V_A) as underlying asset and liability (X) as striking price.

$$V_E = V_A N(d_1) - Xe^{-rT} N(d_2) \qquad \text{(Equation 5.3.3.1)}$$

$$d_1 = \frac{\ln(\frac{V_A}{X}) + (r + 0.5\sigma_A^2)T}{\sigma_A\sqrt{T}}, \quad d_2 = d_1 - \sigma_A\sqrt{T}$$

$$\sigma_E = \frac{V_A}{V_E} N(d_1)\sigma_A \qquad \text{(Equation 5.3.3.2)}$$

where

V_E is the current market value of firm's equity, d_1 is $\frac{\ln(\frac{V_A}{X}) + (r + 0.5\sigma_A^2)T}{\sigma_A\sqrt{T}}$, $d_2 = d_1 - \sigma_A\sqrt{T}$, V_A is the firm's assets value, X is the book value of the debt at time t, that has maturity equal to T, r is risk-free rate of interest, σ_A is the volatility of assets value, the standard deviation of asset return, N is the cumulative density function of the standard normal distribution

V_E, σ_E can be observed but V_A, σ_A are not directly observable and must be inferred. To infer V_A and σ_A, KMV solved it by using the relationship between the observable V_E and the unobservable σ_A. The equation 5.3.3.1 and 5.3.3.2 are solved simultaneously by successive iteration.

Then the distance to default (DD) is calculated. In the option model, the default occurs when assets value is below the liabilities, but KMV observed that default does not always occur at this point.

DD is an ordinal measure of the company's default risk (Kealhofer, 2003). The DD express the unit of asset return standard deviation at the time of maturity.

$$DD = \frac{\ln(\frac{V_A}{X}) + (\mu - 0.5\sigma_A^2)T}{\sigma_A\sqrt{T}} \qquad \text{(Equation 5.3.3.3)}$$

KMV derived the Expected Default Frequencies based on historical database. The Empirical EDF is as follow. KMV update EDF score frequently for more than 20, 000 firms (Saunders, 1999)

$$\text{Empirical EDF} = \frac{\text{Number of firms that defaulted within a year}}{\text{Total population of firms}} \qquad \text{(Equation 5.3.3.4)}$$

5.3.4 Hillegeist et al (2004) Model

Hillegeist et al (2004) show the default probability using lognormal distribution of assets value. They estimate V_A and σ_A by solving equation 5.3.4.1 and 5.3.4.2 simultaneously using SAS program. Also the expected market returns on assets, u, based on the actual return on assets during the previous year.

$$V_E = V_A e^{-\delta T} N(d_1) - X e^{-rT} N(d_2) + (1 - e^{-\delta T}) V_A \qquad \text{(Equation 5.3.4.1)}$$

$$d_1 = \frac{\ln(\frac{V_A}{X}) + (r - \delta + 0.5\sigma_A^2)T}{\sigma_A \sqrt{T}}, \quad d_2 = d_1 - \sigma_A \sqrt{T}$$

$$\sigma_E = \frac{V_A}{V_E} N(d_1) \sigma_A \qquad \text{(Equation 5.3.4.2)}$$

They provide the default probabilities by using lognormal asset value distribution. The probability that $V_A(T) < X$ is as followers:

$$N(-\frac{\ln(V_A / X) + (\mu - \delta - (\sigma_A^2 / 2))T}{\sigma_A \sqrt{T}}) = BSM - \Pr ob \qquad \text{(Equation 5.3.4.3)}$$

u is the expected market return on assets based on the actual return on assets. They set the limitation of the u(t) are set to follows:

$$U(t) = \max \left[\frac{V_A(t) + Dividends - V_A(t-1)}{V_A(t-1)}, r \right] \qquad \text{(Equation 5.3.4.4)}$$

5.4. Evaluation of risk studies

5.4.1 Accounting models

5.4.1.1 Most Accounting model use dichotomy method.

Most studies use dichotomy method, dividing corporation into failure and non-failure corporations. Astebro and Winter (2003) argue that using multinomial models is a better predictor since it uses more information. Also the dichotomy method results in linear in explanation of the default, but the actual default is nonlinear (Saunders, 1999).

5.4.1.2 No theory in accounting models

The accounting models, using statistical and artificial intelligent methods, currently employed do not attempt to provide a theory of failure (Keasey and Watson, 1991, Charitou et al, 2004). Rather the researchers choose the variables based on popularity and predictive success in previous studies, and they summarize information in the financial statement to decide whether the information is fit to distinguish failed company from non-failed company. It might be plausible to build models, which do have a theoretical base using accounting information.

5.4.1.3 Data changes

Begley et al. (1996) document that the researches using Altman (1968) and Ohlson (1980) as indicators of financial distress may face measurement error. Most researchers use the original models with current data, which raises several concerns. They indicate the data and circumstance changes that took place in the 1980s. The first is an increasing acceptance of relatively high corporate debt levels. The second is the changes in the bankruptcy laws in the late 1970s, which may have encouraged firms use bankruptcy as strategy. Astebro and Winter (2002) report that they found

that 3-digit industry average liquidity varied between 2.95 and 4.56 during the periods of 1980-1993.

5.4.1.4 Common factors

One common factor in the following set of models is an earning variable see Table 5.7. High earnings are believed to indicate for a lower risk of bankruptcy.

Table 5.7: Comparison of the variables in the model

	Model	coefficient	earning variable
Altman's Z-score	X_1 = working capital / total assets X_2 = retained earnings / total asscts X_3 = earning before interest and taxes /total assets X_4 = market value equity / book value of total liabilities X_5 = sales / total assets	X_1 = 1.2 X_2 = 1.4 X_3 = 3.3 X_4 = 0.6 X_5 = 1.0	 X_2 X_3
Taffler (1983, 1984)	X_1 = profit before tax / current liabilities X_2 = current assets / total liabilities X_3 = current liabilities /total assets X_4 = No-credit interval in days Constant	X_1 = 12.18 X_2 = 2.5 X_3 = -10.68 X_4 = 0.0289 Con =3.2	X_1
ZETA Model (1977)	X_1 = EBIT / total assets X_2 = A normalized measure of the standard error of estimate around a 5 to 10 year trend of earnings X_3 = EBIT / total interest payment X_4 = Retained Earnings / total assets X_5 = Current assets / Current Liabilities X_6 = Five year average of total market value / total capital X_7 = Total assets		X_1 X_2 X_3 X_4
O-score Model (1980)	X_1= Size = log (total assets / GNP price level index) X_2= Total liabilities / total assets X_3= working capital / total assets X_4= Current liabilities /current assets X_5= Net income / total assets X_6= Funds provided by operations / total liabilities X_7= (1=if net income was negative for the last two years, 0= otherwise) X_8= (1= if total liabilities > total assets, 0= otherwise) X_9= (Net Income $_t$ – Net Income $_{t-1}$) / (|Net Income $_t$| + | Net Income $_{t-1}$|)	X_1 = -0.407 X_2 = 6.03 X_3 = -1.43 X_4 = 0.075 X_5 = -2.37 X_6 = -1.83 X_7 = 0.285 X_8 = -1.72 X_9 = -0.521 Con = -1.32	 X_5 X_7 X_9
Zmijewski (1984)	X_1= Net income to total assets X_2= Total liabilities to total assets X_3= Current assets to current liabilities		X_1
Shumway (2001)	X_1= Net income to total assets X_2= Total liabilities to total assets X_3= Relative size to NYSE/AMEX market X_4= Excess return X_5= The standard deviation of the firm's stock return		X_1

5.4.1.5 Limited prediction

There is an argument that use of only financial statement information is insufficient to be able to predict corporation failure. Zavgren(1985) states that 'any economic model containing only financial statement information will not predict with certainty the failure or non-failure of a firm'. A question arises whether failure can be generally modelled or whether it is particular to the corporation under study. Also the financial information is reported at discrete interval (e.g., quarterly), there are of difficulty to identify rapidly deteriorating companies (Saunders, 1999).

5.4.2 Merton type Models

5.4.2.1 Comparison between Merton model and KMV model

The accuracy of the model depends on how realistic its assumptions are. Merton (1974) model makes a set of assumptions to derive the value of the debt; constant interest rates, drivers of default by the value of the company assets which evolves as a lognormal process, a single debt issues, one period, short-sales of the all assets. The assumptions of the Merton model may lead to loss of ability to predict default: The tail of the assets value distribution below total debt, the non-normality of assets return distribution, the simple assumption of the capital structure may not provide the actual probability of the default (Crouhy et al. 2000). And most companies cannot sell short all or part of the assets to hedge debt; therefore the assumption of the short sales is less plausible. Further the Merton model assumes constant interest rate, while interest rate volatility is a factor that determines the probability of default. Furthermore, the Merton Model does not take into consideration of the correlation between the value of the company assets and interest rates. Finally, the single period assumption has its limit on the reflection of the reality; most financial have multi-period contracts.

The KMV model has relieved the assumption of Merton model (Kealhofer, 2003): In addition to equity, the company has preferred stock, warrants, convertible debts, and convertible preferred stock. The debt may be short term, or long term. Default is a company-wide event, not obligation-specific events. Contrary to Merton model, the

KMV predict the default rate mapping DD (distance to default) to the actual probabilities of defaults, which based on historical information of a large sample firms. The using of actual data increases the accuracy of the default rate. Kealhofer (2003) confirms that researches using the Merton model have poor results in measuring the value of corporate debt, while researches based on the KMV model have excellent results for the measure of default risk.

5.4.2.3 Comparing Merton-type models with other models

Models providing causation information is more useful than models providing relationship information in determine the effect of the decision makers. Kealhofer (2003) argues that accounting model only measure the correlation, not the causation. In this sense, the Merton model is more useful to determine the effect of financial decisions, such as dividend, maturity of debt, adding leverage. Van Deventer and Outram (2002) also state the superiority of Merton type model over other models. Merton type models are more precise in default probabilities than ordinal credit ranking, the probability of default by Merton models can be calculated more frequently than accounting models, and the the Merton type models can be produced in less cost. Hillegeist et al. (2004) compared the information content of bankruptcy probability among Altman (1968), Ohlson (1980) and Black-Scholes-Merton models. They show that the Merton type model provide more information about the bankruptcy probability than do the accounting models. Based on the previous research, Merton-type models, even with its limitation, provide more information and theoretical basis on default risk. Also the Merton-type model can increase the accuracy by adapting more realistic assumption, using term structure interest rate.

5.4.3 Risk Study limitation

Studies of corporation distress risk have many common aspects. They often use long time frames to investigate corporations. They tend to divide the firm years into deciles based on the relative level of distress of the corporations. Dichev (1998) finds that higher risk firms earn significantly lower return than average returns since 1980, using Ohlson model (1980) and Altman model (1968) as proxy of the likelihood of

financial distress, and subsequent realized returns as proxy for systematic risk, calculating the proxies using data from 1981 to 1995. Griffin and Lemmon (2002) use Ohlson model as a proxy for financial distress, and test the relationships between book-to-market equity, distress risk, and stock returns. They find that among firms with the highest risk (classified by O-score quintile), the difference in returns between high and low BE/ME securities is more than twice as large as the return in other groups. In this study, O-score is calculated using accounting values for the periods of 1965 to 1996.

Hanna (1995) uses O-score to test the effect of financial distress on cash flow and accruals. Using 1984 to 1988 data and coefficient from original Ohlson model, Hana calculated O-score and classified 10 groups based on the level of risk. Jeffrey (2004) measures distress risk combining Z-score, O-score and Merton model together and makes risk index using data from 1989 to 2001.

5.5 Conclusion

Based on Aziz and Dar (2004) report, MDA model, Logistic model and Merton model are studied. The first MDA model is Altman's Z-score model (1968). Later Altman revised Z-score model into Zeta model (1977). In UK, Taffler developed the MDA model with UK data. Ohlson used logistic regression to develop Ohlson model (1980). CAPM approach provided the general concept of risk-return relationship by the systematic risk and unsystematic risk. Merton model are utilised option theory to measure the distance to default.

So far, there is no single measure of firm risk. Each measure has its limitation. The limitation may from the modelling process or variable compositions. Most accounting default model use dichotomy method, this lead to error to predict of failure. Also the accounting data are vulnerable to income related variables. Most models have several income related variables. Many efforts in developing default model have been based on accounting data and market data. The accounting data, however, is historic fact and the market data are the expectation of market. The basic information difference may lead to different result in the default estimation.

CHAPTER 6
REPORTING QUALITY AND CONSERVATISM

6.0 Introduction

The International Accounting Standard Committee (IASC) states that the objective of financial statement is to provide information about the financial position, performance and capability of an enterprise that is useful to a wide range of users in making economic decisions (IASC, 1989). Financial accounting information is the product of corporate accounting and external reporting systems (Bushman and Smith, 2003).

There are two aspects of information utilisation: supply side and demand side. The supplier of information should consider the relevance and reliability of the information. Relevance and reliability are two major qualities that distinguish better information from inferior information. For information to be relevant, information should have predictive or feedback value, and timeliness in reporting. For information to be reliable, it should be faithful in representation, neutral and verifiable. Bushman and Smith (2003) states that corporate governance structures are a mechanism to ensure that minority shareholders receive reliable information. On the demand side, data is useful information when users can understand and utilise the data. The users have to understand how the data have changed in different time periods. With the level of interpreting ability, the data can be risk factor or risk management tools. In this sense, information risk in accounting data depend on users and time.

Therefore it is important for investors and regulators to have the ability to assess the quality of the report and whether it is free from manipulation. For this they should consider several factors including who supplies the information, what are the information trends, and how to identify the information risk in financial reports. In this term, the identification of the conservative trend in accounting reporting is of important. Conservatism is requiring a higher verification for recording revenues than recording expenses. Therefore company recognize loss quickly and earnings slowly. Conservatism increases the quality of reporting by the requirement of a higher degree of verification for gains than for losses. Also the conservative accounting can induce

risk information in value evaluation and risk modelling. Careful consideration is required for the earning related studies.

This chapter discusses the issue of reporting quality and accounting conservatism. It will explore the measure available and the implication for the study. The Chapter will discuss reporting and accounting information and the linking to Corporate Governance (CG) and financial information. It will investigate the role of reporting, reporting in the CG codes, and changes of accounting regulations. Measuring reporting quality leads naturally to the concept of accruals, and hence accrual models (Jones model and Modified Jones model), and studies on reporting quality. An aspect of the reporting is accounting conservatism. It is therefore important for later work in this thesis to explore the sources and types of conservatism, and its measure of conservatism. Measurement of conservatism can be either accrual based or market based. The previous researches on conservatism will also be discussed.

6.1 Reporting Quality and Conservatism

6.1.1 Reporting Quality

The role of the quality financial reporting has been studied in various perspectives. Arrow (1972) states that truth-telling is a public good: lying may produce individual gain but, if prevalent, it raises the cost of information-gathering for all. Higson (2003) argue that the financial statement is communication process of corporate performance and risk to the world outside. In the corporate governance context, the financial statements are a method that directors report the performance and situations of the companies. The connection point between corporate governance and reporting is monitoring and controls. Shareholders can monitor and control boards through the outside financial reporting. Also Boards monitors and control managers through inside financial and managerial reports.

Quality financial accounting information aids investors in identifying and evaluating investment opportunities with less error (Bushman and Smith, 2003). With lower

estimation risk the firm can reduce the cost of capitals, contributing to performance. Botosan (1997) reports that higher the quality disclosure, lower the cost of equity. Further Sengupta (1998) documents that higher the quality disclosure, lower the cost of debts.

Also, the governance roles of the accounting information enhance economic performance by providing honest information (Bushman and Smith, 2003). The verifiable information allows the director to enhance shareholder values by monitoring the managers and providing optimal rewards to managers. Boards of directors have a primary responsibility of monitoring the firm's reporting.

Financial accounting systems reduce adverse selection and liquidity risk. Bushman and Smith (2003) state that firms' timely disclosure of financial accounting information reduces investors' risk of loss, this reporting policy attracts more funds into the firm. It is argued that high quality report is assurance method for the investors.

Bushee and Noe (2000) report that the investors invest more in firms with high reporting quality and add to their holdings with increasing report quality. Beasley (1996) reports the lower incidence of financial fraud with the relative higher percentage of outside directors in a board. Using a matched sample of 75 firms with fraud and 75 fraud-free firms during 1980- 1991, they find that the outside directors improve board effectiveness in monitoring. Sharma (2004) reports that as the percentage of the independent directors increase the possibility of fraud decreases. He used a sample containing 78 firms with fraud and 75 fraud-free firms during 1988-2000. Peasnell et al. (2000) documents less income increasing earning management in firms with a higher proportion of outside directors.

6.1.2 Accounting conservatism

6.1.2.1 Definition of the Conservatism

There is no consensus definition on conservatism as the following selection of definitions will testify:

- FASB Statement of Concept No.2 (1982) defines 'Conservatism is a prudent reaction to uncertainty to try to ensure that uncertainty and risks inherent in business situations are adequately considered'.
- Smith and Skousen (1987) 'when there is a genuine doubt concerning which of the two or more reporting alternative should be selected, the alternative with the least favourable effects upon owners' equity should be chosen'.
- Basu (1997) 'Conservatism that requiring a higher verification for recording revenues than recording expenses'.
- Watts (2003) 'Differential verifiability required for recognition of profits versus losses'.
- Feltham and Ohlson (1996) 'conservatism as an asymptotic difference between book and market value'.
- Beaver and Ryan (2002) 'The understatement of the book value of net assets relative to the market value of net assets'.

6.1.2.2 Sources of the Conservatism

A conservative valuation arises by the combination of the historical cost convention, the choices of income-deferring method and estimates within the framework of historical cost, and the asymmetric treatment of gains and losses. The following Table 6.1 provides guidance on sources of conservatism and relationship to financial reporting and discretion available to management and is based on Givoly et al (2003).

Table 6.1: Sources of conservatism

Conservatism sources	Financial reporting	Extent of Discretion available to management
Failure to capture the positive present value of project and subsequent increase in value	The historical cost convention	No discretion
Minimisation of the carrying value of net assets in places	Choices of income-deferring methods and estimates within the framework of historical cost	Discretion in: *choosing among acceptable alternative accounting methods * implementing rules *making estimates
Promter recognition of losses	Asymmetric treatment of gains and losses: LCM verses no recognition of unrealised gains	Discretion in the timing and amount of implementing LCM

(Adopted from Givoly et al, 2003)

6.1.2.3 Role of the Conservatism

Bushman et al (2005) state conservative financial reporting reduces agency cost by providing loss recognition information to the shareholders. Watte (2002) explains four main reason of conservatism: contracting, shareholder litigation, regulations, and taxes. Conservatism constrains managers' tendency to make opportunistic payments to themselves by limiting dividend and compensation payouts based on conservative earnings. Also conservatism reduces the possibility of litigation because shareholders are much more to litigate when earnings are overstated than they are understated. The regulators set more conservative regulations to enforce conservative reporting. Further conservatism reduce the present value of taxes the firms have incentives to defer the income.

Ahmed et al (2002) report that accounting conservatism reduces the bondholder-shareholder conflicts over the dividend policy, and reduce debt costs. Using regression analysis it is possible to explore the relationship within conservative. Firms with greater operating uncertainty (measured by the standard deviation of ROA: STDROA) are more conservative. Firms with greater conflict (Dividend, Leverage) appear to adopt more conservative accounting. Table 6.2 indicates the

nature of the relationships discovered. It can also be established that firms with more conservative accounting have more favourable debt ratings, indicating lower debt costs.

Table 6.2: Relations with Conservatism

	Market based measure of conservatism		Accrual based measure of conservatism	
Conflict Proxies	1993-1998	1987-1992	1993-1998	1987-1992
STDROA	+	+	+	+
Dividends	+	+	+	+
Leverage	+			

On the other hand, Hendriksen and Van Breda (1992) argue that conservatism is a very poor method of treating the existence of uncertainty in valuation and income, and the inconsistent reporting will distort accounting data. This inconsistent data processing is the risk of financial data handling in the value evaluation or risk modelling.

6.1.2.4 The Pervasiveness of Conservatism

Recent researches show the pervasive of accounting conservatism in USA and UK. Givoly and Hayn (2000) report US accounting conservatism has increased since 1950. Using US data for the periods of 1950 to 1998, they identify the pervasive conservatism in the sample periods. They used four measures for investigate conservatism; (a) The level and rate of accumulation over time of negative non-operating accruals shows non-operating accruals accumulates steadily over the sample periods and the accumulation is more pervasive in the more recent years. (b) Measures based on the earning-return associations show earning reflect bad news more quickly than good news and the response time to bad news are more pronounced in recent years. (c) The skewness of the earnings distribution relative to the cash flows distribution and the variability of earnings relative to cash flows result earnings have increasingly dispersed over the periods and the accounting accruals contributed the increasing volatility of earnings. (d) The market–to-book ratio show U shaped pattern: before 1974, the ratio is decreasing, but increasing after 1974.

Huijgen and Lubberink (2003) studied the conservatism difference between firms with cross-listing in UK and USA and firms listed in UK. The cross-listed firms show more conservative in earning reporting than non-USA listed firms: to avoid litigation in the USA. UK firms that cross-listed in the USA since 1993 shows higher level of conservatism than firms that cross-listed before 1993: to establish credibility by way of conservative accounting. Pope and Walker (1999) test the degree of conservatism between USA and UK. USA shows higher degree of conservatism by measured earning before extraordinary, while UK shows higher by measured earning after extraordinary.

6.1.2.5 Conservatism and CG

Beekes et al (2004), extending Basu (1997) model, and using UK data from 1993 to 1995 explored issues surrounding conservatism. They discovered that the sensitivity of earnings to bad news is greater than that of the good news and firms with above the median level of non-executives on the board have more sensitivity to bad news than firms with lower outsider representation. Firms with external block-holders are more sensitive to bad news when there are more non-executive directors on the board. Firms with more outside directors are more sensitive to bad news where managerial ownership is below 5%, the results are not significant above 5%.

Lara, et al (2005) assesses the association between conservatism and corporate governance, using UK 1623 firms for the period of 1992-2003. They found that firms with strong governance had more conservative accounting than weak governance firms in terms of earning sensitivity to bad news. They also showed that firms with strong governance firms have more conservative accounting than those with weak governance in terms of discretionary accruals.

LaFond (2005) studied the relationship between closely held ownership and conservatism, using 16 countries. LaFond's first study was to investigate influence of the ownership on conservatism within 5 countries: Australia, France, Germany, Japan and UK. It was found that Australian firms show the largest coefficient, following UK, French German and Japan by measuring sensitivity to bad news. In the ownership study, he found that the more closely held ownership, the less conservative

earning in France, Germany, and Japan. But there is no consistent pattern in UK. In the second study LaFond investigated the influence of the ownership on conservatism within three legal regimes: English, French and German. The result is that the greater closely held ownership, less conservative earning in all regimes.

Moreira and Pope (2004) tested the relationship between earning management and conservatism, using US data for the period 1976-1994, with graphical and probit analysis. In Graphical analysis the distribution of deflated earning level shows that the discontinuities at zero are higher for the Bad news distribution. In Probit analysis, bad news firms have a higher degree of earning management, avoiding small earning losses and reporting small profits, than good news firms.

Jain and Rezaee (2004) investigate the impact of the Sarbanes-Oxley Act on accounting conservatism, using data from the period of 2001-2003 with 3546 firms. They find different results depend on different measures. They finds no difference when they used BTM (Book to Market value), Income increasing Abnormal accruals, and Income decreasing Abnormal accruals, but they did find a difference when they used Total accruals, Abnormal accruals, and Earning-return measures.

In a study based on US, Protiviti (2002) reports the Sarbanes – Oxley Act of 2002 will induce more conservative financial reporting by companies. Watts (2003) also states that 'the government regulation of financial reporting, dating from the Securities Acts of 1933 and 1934, actually contributes to conservatism'.

6.2. Measuring reporting quality based on accruals

6.2.1 Accruals

Based on the revenue recognition principle, accrued revenues occur when revenues earned but not yet received in cash, such as credit sales. For revenue recognition, following two conditions have to meet at the same time: (1) revenue is recognized when it is realized or realizable and (2) it is earned (SFAC No.5, 1984). Kieso and

Weygandt (1998) state the details for the terms in the revenue recognition principles are needed.

> "Revenues are realized when goods and services are exchanged for cash or claims to cash, such as receivables. Revenues are realizable when assets received in exchange are readily convertible to known amounts of cash or claims to cash. Revenues are earned when the entity has substantially accomplished what it must do to be entitles to the benefits represented by the revenues".

The matching principle indicates that the costs should be related to the achievement of reported revenues. Thus expense recognition is tied to revenue recognition. Also for those costs for which is difficult match with revenue, a rational and systematic allocation policy is used that will approximate the matching principle. Accrued expenses are occurred when expenses incurred but not yet paid.

Component of accruals

Current accruals affect financial reporting within two accounting periods. Thus current accruals adjust operating cash flows that occur one year before or one year after the accruals is recorded. Table 6.3 defines the characteristics of the components of accounting associated with accurals.

Table 6.3: Characteristic of Accounting Components

Component	Characteristics
Account receivable	A sale on credit, which increase revenues. Net account receivable represents management's expectation of future collections
Inventory	There are several measurement methods based on the different assumptions. Inventory also utilised by subjective write-down (Richardson et al. 2005)
Account payable	Richardson et al.(2005) regard account payable as high degree of reliability in measurement because it is a financial obligation to suppliers.
Debt in current liabilities	Debt in current liabilities is excluded from operating accruals due to it is related to financial transactions

Non-current accruals mitigate timing and matching problems that are of longer duration. Two types of non-current accruals are identified. One type reflects timing differences between earnings and cash flow from operation for more than two accounting period, such as long-term warranty provisions. The other is a permanent difference, such as depreciation.

Reliability of accruals

Researches have studied the reliability of the information about accruals. Richardson et al (2004) presents the following assessment of the reliability of accruals, see Table 6.4.

Table 6.4: The reliability of accruals

Accruals	Reliability	Summary of reasoning
Receivable	Low	Estimation of uncollectible are required A common earning management tools
Inventory	Low	Various cost flow assumption Subjective write-down
Payable	High	Financial obligation with a high degree of reliability
PP&E	Low	Involve in subjective amortisation and write down
Intangible	Low	Involve in subjective amortisation and write down
Long-term Payable	High	Measured with high degree of reliability
Post retirement benefit	Low	Involve many subjective estimates

6.2.2 Approaches to calculate accruals

Balance Sheet approach

Each researcher use different definition in calculating the accruals. Since Healy (1985) many researchers used the definition of total accruals as the change in nonworking capital less total depreciation expense.

TA= (Δ Current Assets – Δ Cash) – (Δ Current Liability – Δ Current maturity of Long-term debt – Δ income tax payable) – Depreciation & Amortisation

Cash-flow statement approach

But the above definition of accruals omits non-operating accruals; loss and bad debt provisions, restructuring chares, the effect of changes in estimates, gains or losses on the sale of assets, assets write downs, the accrual and capitalisation of expenses, and the deferral of revenues (Richardson et al. 2005, Givoly and Hayn 2000). Givoly and Hayn (2000) calculated total accruals from cash flow statement;

TA = Net income – cash flow from operation (CFO)

Further they calculated non-operating accruals;

NOA= Total accrual before depreciation – Working capital accruals,

where total accrual before depreciation = NI + depreciation – CFO

Reconciling the two approach

The major difference between Givoly and Hayn (2000) and other are the recognition of non-operating accruals. Following Table 6.5 shows how the two approaches use the accounting counts and how two approaches reconcile each other. Table 6.5 illustrates 3 year consecutive financial statement including Balance Sheet, Income Statement and Cash Flow. Two approaches of calculating accruals are displayed. The BS approach uses the accounting items from Balance Sheet such as Accounting Receivable (AR), Inventory, Prepaid Expense, Account Payable, while the CF approach uses items from Income Statement and Cash Flow.

In BS approach, the current assets accruals (CAA) are calculated from changes of current assets deducting changes of cash. Also the current liability accruals (CLA) are calculated from changes of current liabilities deducting both changes of short-term debts and changes of tax payable. Working capital accruals (WCA) is CAA minus CLA. In CF Approach, the total accruals are Net Income minus Cash flow from Operation. To calculate the non-operating accruals (NOA) total accrual before depreciation (TABD) is introduced. Then the NOA is calculated from TABD deducting working capital accruals. In the bottom line of the Table 6.5, negative NOA is calculated in the third year of the report. Givoly and Hayn (2000) used the NOA as the sign of conservatism.

Table 6.5: Comparison of Approaches

Financial Statement and Accruals				BS Approach			CF Approach		
	Ist term	2nd term	3rd term	Ist term	2nd term	3rd term	Ist term	2nd term	3rd term
Balance Sheet									
Cash	49,000	37,000	54,000						
AR	36,000	26,000	68,000	36,000	(10,000)	42,000			
Inventories			54,000			54,000			
Prepaid expense		6,000	4,000		6,000	(2,000)			
Land		70,000	45,000						
Building		200,000	200,000						
Accum dep		(11000)	(21000)						
Equipment		68,000	193,000						
Accum dep		(10000)	(28000)						
AP	5,000	40,000	33,000	5,000	35,000	(7,000)			
Bond payable		150,000	110,000						
Equity	60,000	60,000	220,000						
Retained Earning	20,000	136,000	206,000						
Income statement									
Revenue	125,000	492,000	890,000						
COGS			465,000						
Operating expense	85,000	269,000	188,000						
dep	-	21,000	33,000	-	21,000	33,000			
loss on equip sale			2,000			2,000			
Interest exp			12,000						
Income tax	6,000	68,000	65,000						
Net income	34,000	134,000	125,000				34,000	134,000	125,000
Cash flow statement									
NI	34,000	134,000	125,000						
Dep(Eqipment)		21,000	33,000						
ΔAR	(36,000)	10,000	(42,000)						
Δinv		-	(54,000)						
ΔPrepaid expense		(6,000)	2,000						
ΔAP	5,000	35,000	(7,000)						
Loss on sale of equip		-	2,000						
Cash from operation	3,000	194,000	59,000				3,000	194,000	59,000
Accrual Process									
CAA=ΔCA- ΔCssh				36,000	(4,000)	94,000			
CLA=ΔCL-ΔSTD-ΔTP				5,000	35,000	(7,000)			
WCA=(ΔCA- ΔCssh) - (ΔCL-ΔSTD-ΔTP)				31,000	(39,000)	101,000			
Depreciation Accruals				-	21,000	33,000			
Non operationg accruals						2,000			
BS Approach									
TA(1)= WCA- Dep				31,000	(60,000)	68,000			
WCA=(ΔCA- ΔCssh) - (ΔCL-ΔSTD-ΔTP)				31,000	(39,000)	101,000			
CF Approach									
TA=NI-CFO							31,000	(60,000)	66,000
TABD=NI+DEP-CFO							31,000	(39,000)	99,000
WCA=(ΔCA- ΔCssh) - (ΔCL-ΔSTD-ΔTP)							31,000	(39,000)	101,000
NOA=TABD-WCA							-	-	(2,000)

6.2.3 Reporting quality Models

Accruals can be divided into discretionary accruals and non-discretionary accruals. The non-discretionary accruals are considered the normal portion of the real transactions. In accounting manipulation studies, discretionary accruals are used to measure the degree of manipulation. The discretionary accruals can be separated from the total accruals by several models.

6.2.3.1 Jones Model (1991)

Jones (1991) gets discretionary accruals from total accruals less an estimate of its nondiscretionary component. The nondiscretionary components are projected from total accruals onto sales and property, plant, and equipment. Jones (1991) assumes that non-discretionary accruals (NDA) depend on the change in revenues (ΔREV) and the level of property, plant, and equipment (PPE), both of which reflect the firm's economic environment. Also Jones assumes that revenues are nondiscretionary.

The coefficient for ΔREV_{it} is expected to be positive or negative depending on working capital accruals. If a given change in revenue causes income-increasing change, such as increasing in account receivable, the sign of the ΔREV_{it} coefficeient is positive. If the revenue change causes income-decreasing change, such as decreasing in account receivable, the sign can be negative. The expected sign for PPE is negative because high fixed assets are expected to lead to high depreciation, which related to an income decreasing accruals.

The nondiscretionary accrual in Jones Model is:

$$NDA/A_{it-1}=\alpha_1[1/A_{it-1}] + \alpha_2[\Delta REV_{it}/A_{it-1}] + \alpha_3[PPE_{it}/A_{it-1}]$$

Estimates of α_1, α_2, and α_3 are generated using following model.

$$TA_{it}/A_{it-1}=a_1[1/A_{it-1}] + a_2[\Delta REV_{it}/A_{it-1}] + a_3[PPE_{it}/A_{it-1}] + \varepsilon_{it}$$

The prediction error, ε_{it}, represents the level of discretionary accruals.

$$\varepsilon_{it} = TA_{it}/A_{it-1} - (\alpha_1[1/A_{it-1}] + \alpha_{2i}[\Delta REV_{it}/A_{it-1}] + \alpha_{3i}[PPE_{it}/A_{it-1}])$$

where TA_{it} is total accruals in year t for firm i, A_{it-1} is total assets in year t-1 for firm i, $\Delta REV_{,t}$ is revenues in year t less revenues in year t-1 for firm i, $PPE_{i,t}$ is gross property, plant and equipment in year t-1 for firm i and ε_{it} is error term in year t-1 for firm i.

6.2.3.2 The Modified Jones Model (1995)

Dechow et al. (1995) assume that all changes in credit sales result from earning management. Thus, the model deducted change of receivable from change of revenue. Compare to Jones' model (1991), therefore, the portion of discretionary accruals increases. Estimates of α_1, α_2, and α_3 are obtained from the original Jones Model, not from the modified model.

$$NDA_t = \alpha_1[1/A_{it-1}] + \alpha_{2i}[(\Delta REV_{it} - \Delta REC_{it})/A_{it-1}] + \alpha_{3i}[PPE_{it}/A_{it-1}]$$

where TA_{it} is total accruals in year t for firm i, A_{it-1} is total assets in year t-1 for firm i, $\Delta REV_{,t}$ is revenues in year t less revenues in year t-1 for firm i, $\Delta RECit_t$ is change in account receivables, $PPE_{i,t}$ is gross property, plant and equipment in year t-1 for firm i and ε_{it} is error term in year t-1 for firm i.

6.2.3.3 Critics of accruals based model

Gomez, Okumura and Kunimura(2000) state that the Jones model assigns most of the total accruals to the discretionary accruals. Kang and Sivaramakrishnan (1995) suggest that the variables used are not be free of earning management and that the simultaneity problem may affect the estimated coefficient and standard error. They suggest that the study did not control for unmanaged accruals related to cost of goods sold and other expense

Sloan (1996) argues that firms with extreme accruals have lower persistence of accruals and earnings. Dechow and Dichev (2002) suggest that firms with large accrual estimation errors have low quality of earnings. Accrual-based model may perform well for firms that have a range of moderate to large accruals (Dichev and Tang, 2005)

6.3. Measuring Accounting Conservatism

6.3.1 Accumulated accruals

Givoly and Hayn's (2000) definition of conservatism is that ' it is a selection criterion between accounting principles that leads to the minimisation of cumulative reported earnings by slower revenue recognition, faster expense recognition, lower asset valuation, and higher liability valuation'. They also state that a consistent predominance of negative accruals over a long period is an indication of conservatism.

Givoly and Hayn (2000) measure conservatism by the level and rate of accumulation over time of negative non-operating accruals. The non-operational accruals are the total accrual (TABD) minus operational accruals.

Non Operating accruals = TABD - Operational Accruals
TABD= Net Income + Depreciation – Cash from operation;
Operational Accruals = working capital accruals = ΔAR + Δ Inventories + Δ prepaid Expenses – Δ Account payable – Δ Tax payables

The non-operating accruals consist of loss and bad debt provisions, restructuring charges, gains or losses on the sale of assets, the effect of changes in estimates, assets write-downs, the accruals and capitalisation of expenses, and the deferral of revenues.

These accruals are somewhat discretionary in nature (Givoly, Hayn, and Natarajan, (2003). They state that conservative accounting leads to accumulated negative accruals. Qiang (2003) suggests using cumulative earning discretion as conservatism measure. In his study, debt ownership, litigation costs, auditor liability, corporate governance, and political costs are associated with conservatism.

6.3.2 Variability and Skewness of earnings

Basu (1997) documents that conservatism results in the lower persistence of earnings, mean higher volatility, in bad news periods relative to good news periods. In his regression analysis, bad news earnings changes have a greater tendency to reverse in the next period than good news earnings periods. This results show that bad news reduces current earnings through write-off expected loss immediately, but good news spread over earnings over several periods. Givoly and Hayn (2000) measure conservatism by variability of earnings. The more the accounting is conservative, the more variability of earning. They document that accruals variance contribute to an increased in earnings variability. They also reveal that the variance of non-operating accruals is the greatest contributor to the increasing in earning variability. Dichev and Tang (2005) use earning volatility by the standard deviation of the deflated earnings for the most recent five years, where earnings are deflated using average assets. Minton, Schrand. and Walthe (2000) use volatility as the coefficient of variation of the twenty observations within each time period. The coefficient of variation is calculated by the standard deviation of cash flow (or earnings) divided by the mean of the absolute value of the same variable

Conservatism recognises loss immediately, and delays earnings, resulting in a negatively skewed earning distribution. Givoly and Hayn (2000) measure conservatism by the skewness of earnings. The more conservative the accounting is, the more negatively skewness of earning distribution is.

6.3.3 Book to market (BTM) ratio

A BTM ratio is used as a measure of conservatism by several researchers (Beaver, Givoly and Hayn 2000, and Ryan 2000, Ahmed et al, 2002). BTM ratio shows the extent to which book value is lower than market value. A ratio less than one indicate conservative accounting.

Beaver and Ryan (2000) argue a function of two components in the variation of book-to-market ratio. The two components are biased accounting recognition, which represent conservatism, and lagged accounting recognition, which reflects market shocks not yet recognised in book value. Ahmed et al. (2002) estimated using the fixed-effect model of pooling analysis. They measure conservatism based on the firm-specific coefficient, α_i, in the following model:

$$BTM_{it} = \alpha + \alpha_i + \alpha_t + \Sigma \beta_k RET_{it-k} + e_{it},$$

where BTM_{it} is the book-to-market ratio for firm i at fiscal year-end t, α is the intercept across all firms and years, α_i is the persistent firm-specific bias component of book-to-market ratio over the sample period is α_t is the year-specific component of book-to-market ratio across all firms; and RET_{it-k} is the stock return (with dividends) for firm i in year t.

6.3.4 Earning and return model

Basu's (1997) measure of conservatism relied on the assumption that conservative accounting recognizes bad news in a timelier manner than good news. In his terms, 'conservatism results in earnings being timelier and more sensitive concurrently to publicly available bad news than good news'. In this case, earning is predicted to be more strongly associated with negative stock returns, as a proxy for bad news. The primary measure of conservatism is derived as the coefficient β_1 in the regression:

$$X_{it}/P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} DR_{it},$$

where X_{it} is the earning per share for the firm i in the fiscal year t, P_{it-1} is the price per share at the beginning of the fiscal year, R_{it} is the return on firm i from 9 months before fiscal year-end t to the three months after fiscal year end t, DR_{it} is a dummy variables; =1 if $R_{it} < 0$, =0 otherwise.

Basu (1997) measures conservatism by the slope coefficient and R^2 from a regression of annual earnings on annual unexpected return. The slope coefficient β_1 measures the incremental response of earnings to bad news over the response to good news. The more the firms are conservative in accounting, the higher the slope coefficient and R^2 due to unrealized losses are more likely to be recognized immediately under conservative accounting than unrealised gains.

There are limitations to the method suggested by Basu. Using stock price movement to proxy for unbiased financial information has the difficulty that stock prices reflect a series of issues and hence the information will be beset by the problem of noise. It does not account for other sources of information on bad news for example earnings also contains measurement error for bad news firms see Pae et al (2004). Hence Basu's model does not provide a comprehensive measure of conservatism (Givoly et al. 2003). The timeliness of the measurement will also have an impact on the R^2 according to Pae et al (2004). They also point out that the measurement error in the regressors will inflate the error (ϵ_{it}), and hence reduce the R^2.

6.3.5 Limitation of the models

Several researches document different results from the range of models. Givoly el al. (2003) reported negative relationship among different measure for conservatism. They used Market to Book of operating assets, Conservatism due to present value investment, Conservatism due to accounting rules, and Conservatism as measured by Hidden Reserves. Pope and Walker (2002) also reported negative relationship among different timing measure and the market–to-book ratio. Pae el al (2004) reports that Earning conservatism increase as market-book ratio declines. Beaver and Ryan (2004) argue that most models for conservatism are conditional models including Basu model (1995).

6.4. Conclusion

This chapter dealt with reporting quality and conservative reporting. Reporting is the communication tools between management and shareholders. Therefore reporting quality is of interest in corporate governance perspective. The governance system enforces the reporting quality. Another issue is conservative reporting. Conservative reporting is pervasive in USA and UK. The measures for reporting quality and conservatism have been explored. Accrual and stock information are used, but there are limitations in measuring of these qualities.

Data can only become information when users can understand and utilise the data. Users should consider several factors including who supplies the information, what are the information trends, and how to identify the information risk in financial reports.

CHAPTER 7
RESEARCH METHODOLOGY

7.0 Introduction

The previous Chapters have provided the review of the literature on corporate governance, risk and conservatism. This Chapter will describe the approach taken to explore the issues of corporate governance, risk and conservatism. This chapter will provide the methodological base to the analysis employed. It includes discussions of how theories are generated and tested. The research methods are the actual techniques or procedures used to gather and analyse data related to the research questions of the thesis.

The Chapter will start by discussing the philosophical approach taken in the study, a Positivistic Approach. It will then describe the sampling approach and the collection of the data. It will consider the performance measures. It then will describe the research design for the particular studies Board, Ownership, Reporting Quality and Conservatism, and finally for the Risk Models.

7.1 Positive Approach

Positivism is the mainstream of study in finance and accounting. Positive theories are based on empirical data, and concerned with explanation and prediction (Ryan et al., 2002). The tradition of positivism goes back to Aristotle's empiricism, which argues that knowledge is gathered by observation and categorization (Ryan el at., 2002). This tradition is linked to logical positivism, founded in Vienna in the 1920s (Blaikie, 1993).

Positivism holds ontology of an ordered universe made up of atomistic, discrete and observable events (Blaikie, 1993). The order can be represented by constant conjunctions or being ontology (Letza and Sun, 2002). Under this assumption, reality is enduring and permanent, exist independent of our perception, belief and biases (Letza and Sun, 2002). In this context, corporation is a ready-made

institution and enduring social reality. Under logical positivism, knowledge can be derived from sensory experience such as experimental or comparative analysis (Blaikie, 1993). There are a number of criticisms of the approach. In ontology terms, the reality is changing and movement and the flux of things are the fundamental aspect of reality. In epistemology terms, the difference is between theoretical words and observable world. In these terms, there are problems of correspondence between the world and the words. Letza and Sun (2002) suggest the process is meaningful in understanding of social phenomena of corporate governance.

7.2 Data Sampling and Collection

7.2.1 Sampling

The sample comprises manufacturing firms listed and de-listed in UK stock market, which are covered on OSIRIS database. The sample selection procedure and its effects on sample size are summarized in table 7.1. Initially 436 firms for 16-year period, 1988-2001, are retrieved from OSIRIS database. Non-financial data was collected by hand as it is not available in machine-readable form. Each relevant data based on 436 firms are collected for the period of the 1989-2000. The firms broken down by SIC code are presented in Table 7.1, giving the number, which were listed and de-listed. See Appendix 1 for the more detail of the sample.

TABLE 7-1: Sample by SIC and list and de-listed

SIC		List	Delist	Total
20	Food and kindred products	43	23	66
28	Chemicals and allied products	74	42	116
35	Industry, commercial machinery computer equip.	43	30	73
36	Electric and Electronics	64	29	93
37	Transportation equipment	23	18	41
38	Measurement instrument, photos	33	14	47
	Total	280	156	436

7.2.2 Data for Board Structure

Governance data were taken from the Corporate Register, which includes coverage of all UK fully quoted companies. The Register provides information on duality, board size, board structure, etc. The Registers were provided by different consulting firms based in different periods: 1989-1991 (The Hambro corporate register), 1991 (The Corporate register), 1992-1994 (The Arther Anderson corporate register), 1995- 2000 (The Price Waterhouse corporate register).

A firm was classified as having a duality structure in a year if the CEO and Chairman of the Board was the same individual. Separation firms were those where the positions of CEO and Chairman of the Board were held by separate individuals.

7.2.3 Data for Tenure

To investigate the impact of corporate governance changes and ownership changes, the tenure data were collected from the Corporate Register. The Corporate Register provides the starting date of the director in the board, and the director is still a member of the board, the tenure can be calculated. The tenures for Chairman, CEO and Financial director were calculated.

7.2.4 Data for Ownership

Ownership data consists of institutional ownership and board ownership. Ownership data were collected from the Corporate Register and Crawford's Directory of City connections.

The Corporate Register provides the large shareholder information which contains directors and institutional investors. Each year data are collected manually from 1990 to 2000. The institutional ownership is divided into two parts: Big 3

Institutional Investors and Big 1 Institutional Investors. The Big 3 institutional investors are the largest three institutional investors in each company. The Big 1 institutional investor is the largest investor in each company.

Crawford's Directory of City connections is an annual business directory that contains major UK companies and their professional advisers. The directory also provide the board ownership information, which represented by BFA (Board, family and associates). BFA indicates percents of the voting share interest held by member of board, their families and associates. For each year data are also collected manually.

7.2.5 Data for Performance and Risk measurement

For the performance measure, Net income and Tobin's Q is used. Net income is the bottom line of the Income/Loss statement. Tobin's Q is defined as market capitalisation plus total debt divided by total assets. For the calculation of Tobin's Q, OSIRIS database for financial data and London Business School (LBS) for market capitalisation data are used. To avoid the influence of extreme observations, the top and bottom 1 percent of earnings and Tobin's Q were removed, following Dichev and Tang (2005), Thomas and Zhang, (2000) and Guay et al. (1996).

For the risk measure, Z-Score and Firm Specific Risk are used. Z-Score data are obtained from OSIRIS data base. Higher score indicate healthier company. For measure firm specific risk, Risk Measurement Service (RMS) data are used. RMS is operated by London Business School (LBS). RMS is a quarterly updating service, based on monthly observations extending back over five years. RMS calculate beta using five years of monthly returns (RMS, 2001). Unlike to Rosenberg Associates' estimates of U.S. betas, which calculate beta based on both stock prices and fundamental data, RMS beta are calculated only from past share prices. RMS measures firm specific risk as a percentage return per year. The higher the figure, the greater the specific risk.

7.3 The issues of Performance and Risk measures

7.3.1 Introduction

The measures of performance and risk are mainly divided into two divisions; accounting measure and stock market measure. Some measures include both the accounting and stock price information. An understanding of the measure is necessary to evaluate the results.

7.3.2 Accounting information and Market Information

7.3.2.1 Accounting information

Accounting information is the results of accounting processes based on Generally Accepted Accounting Principles. Accounting profit is based on backwards exploration and is constrained by standards set by profession (Demsetz and Villalonga, 2001). Also the accountings measures are based on measures which are subject to managerial manipulation.

7.3.2.2 Market information

It is arguable that to what extent the stock market is informative. An efficient share market is the place that shares are correctly prices. That means stock prices instantly and fully reflect all available information.

Fama (1970) defines three types of efficiency: weak-form efficiency, semi-strong form efficiency and strong-form efficiency. Weak-form efficiency exists when prices fully reflect all information contained in the past share price. In this case, no investors can earn excess returns by using historical information. Semi-strong efficiency exists when share price reflect all publicly available information. In this case, no investors can earn excess returns by using publicly available information. Strong-form efficiency exists when share prices fully reflect all knowable

information including that, which is not publicly available. No investors can earn excess returns by using publicly available.

Pike and Neale (1993) document that before the 1987 stock market crash; both the USA and UK stock market shows the semi-strong form of efficiency. Copeland et al. (2005) documents that most evidence supports the weak and semi-strong form of capital market efficiency.

Yet there have been several reports that suggests the weak efficient market hypothesis, Size effect and Timing effect. Dimson and Marsh (1986), in UK, report that smaller firms show better performance than large firms. French (1980) report the negative return on Monday. Also several researchers reported year-end effect that stock returns decline in December, then the price increasing in January, see Roll(1983).

7.3.3 Performance measures

7.3.3.1 Earnings

Reported earnings are the sum of cash flows from operations and accruals. The perspective of performance measure considers accruals as a better indicator for future cash flow than cash flow alone. Financial Accounting Standard Board (FASB) expresses the view that accrual accounting provides a better indication of firm's ability to generating cash flows than cash basis accounting does (FASB, 1978).

Many researchers report that earning is a better measure of performance than cash flow. Dechow (1994) reports that earnings are more associated with stock return than realized cash flow, and also argue that earnings are more informative than cash flow because cash flows have timing and matching problems. The perspective of improving earning quality insists that accruals record real economic

transaction arising from the timing and matching principles. Thus accruals smooth temporary component of cash flow, this can lead improving earnings quality.
Accruals can be regarded as an opportunistic tool for management. Accruals can hide poor performance or postpone a good portion of current earnings to future. The following studies focus on the opportunistic use of accruals. Healy (1985) reports that managers may choose income-decreasing accruals to enhance future earnings. Chan, Chan, Jegadeesh, and Lakonishok (2001) see high discretionary accruals as a sign of low quality earnings. Also they find that firms with high annual discretionary accruals have lower excess equity returns over one to three year holding periods. The perspective of misleading earning quality considers the strong negative correlation between cash flows and accruals as earning management activity. Therefore this view sees the smoothing as manager's opportunistic activity to manipulate the earnings. Wysocki (2005) finds that a stronger negative correlation between cash flows and accruals (i.e. smoothing) leads to lower earnings quality. If a strong negative correlation between cash flows and accruals improve earnings quality, then it should be negatively related to the three earnings quality measures.

7.3.2.2 Tobin's Q

Tobin's Q is defined as following;

$$\text{Tobin's Q} = \frac{\text{Equity Capitalization} + \text{Total Liabilities}}{\text{Total Assets}}$$

Tobin's Q is a proxy for how closely shareholder and manager interest have been aligned. Tobin's Q is a measure of the real value created by management. The higher the value of Tobin's Q the more effective the governance mechanisms is and the better the market's perception of the company's performance. A high value of Tobin's Q indicates that more value has been added or there is an expectation of great future cash flow. Values of Tobin's Q above one indicate that the market perceives the firm's internal organization as effective in leveraging the company's assets; while a Tobin's Q below one shows that the market expects

high agency costs. The stock market measure reflects investor expectation between market value and firm value. This may not lead to a good proxy for performance.

7.3.4 Risk Measures

7.3.4.1 Accounting risk measures

There is an argument that use of only financial statement information is insufficient to be able to predict corporation failure. Zavgren(1985) states that 'any economic model containing only financial statement information will not predict with certainty the failure or non-failure of a firm'. A question arises whether failure can be generally modelled or whether it is particular to the corporation under study. Also the financial information is reported at discrete interval (e.g., quarterly), there are of difficulties in identifying rapidly deteriorating companies (Saunders, 1999).

7.3.4.2 Stock prices measure

Sharpe (1964) separates the total risk of securities into two components: systematic risk and unsystematic risk. Systematic risk (β) measures the degree of co-movement between the asset's return and the return on the market portfolio. Therefore systematic refers to the variability in return due to the impact of macro economy, such as fiscal changes, exchange rate changes and interest rate changes. Unsystematic risk (or firm specific risk) refers to the variability in return due to factors unique to the individual firms, such as management ability and R&D achievement.

Capital Asset Pricing Model defines the expected return on risks as following equations (Pike and Neale, 1993);

$$E(R_i) = R_f + \beta_i E(R_m - R_f)$$

where, R_i is the return on assets i, R_f is risk free rate, R_m is the return on the market portfolio.

The coefficient can be estimated with the following regression equation:

$$E(R_i) - R_f = \alpha_i + \beta_i E(R_m - R_f) + \epsilon_i$$

where α_i is a constant, ϵ_i is an error term. From this equation, following relationship can be drawn:

$$\sigma_i^2 = \beta_i^2 \sigma_m^2 + \sigma_\epsilon^2 = \text{systematic risk} + \text{unsystematic risk}$$

Hamada (1969), who connected Modigliani and Miller (1958) theory to CAPM model, demonstrated the equity beta of a firm is related with asset and debts.

$$\beta_g = \beta_u \cdot [\, 1 + (V_B/V_s)\,(1\text{-}T)]$$

where, β_g is geared beta, β_u is ungeared beta, V_B is the market value of debt, V_s is the value of shareholder's stake in the company.

Empirical studies on CAPM reveal that the model is not perfectly valid. Fama and French (1992) report that correct relationship disappeared over the period 1963-1990. They argue that average stock return is more related to company size measured by market capitalisation and book value to market value.

There are contradictory reports on the relationship between default risk and systematic risk. Denis and Denis (1995) state that bankruptcy risk is positively relate to systematic risk. Shumway (1996) finds that the risk of default is systematic, in the NYSE and AMEX firms. However, Opler and Titman (1994) state that bankruptcy is unrelated to systematic risk. Asquith, Gertner, and Sharfstein (1994) find that bankruptcy is unrelated to systematic risk.

7.4 Research Design for Board Study

7.4.1 Methodology issues

7.4.1.1 Difficulty on board studies

The major problem in board study is the difficult of observation of board practices. In this case board working can only be surmised based on public information. Zald (1969) expresses the difficulty of board study: the decision process cannot be watched, the member are busy so they seldom provide a chance to talk, but he still states that 'the study is possible, and pieces of evidence can be brought to bear'. Leighton and Thain (1997) state the board of directors is a black box. There has been a range of approaches to studies of the board and its behaviour. These include database surveys, questionnaire surveys, interview surveys and boardroom observation. Each of these has advantages and disadvantages which will be discussed, see Table 7.2

Table 7.2: Research method in board study

	Advantages	Disadvantages
Data-base surveys	-Broad sample -Possibility of generalisations	-Surrogate variables of people selected may not connect with reality -Focus on visible issues -Cannot focus on internal board issues
Questionnaire surveys	-Descriptive of reality -Can design sample -Inferences about cause and effect	-Response bias -Difficult to test causation
Interview surveys	-Respondents explain central Relationships -Can explore issues interactively -Can focus on decision dynamics	-Access -Costly-difficult to get access to large samples
Boardroom observation	-Relationships may be studied -Group dynamics may be observed -Decision making may be analysed	-Access impossible -Legal aspects -Confidentiality

Sources: Clarke (1998)

7.4.1.2 Endogeniety verse Exogeneity

This issue deals with are whether the internal governance mechanism is exogenous or endogenous. If board composition is endogenous, every board will have its optimum composition when the board composition affects performance. Then there is no relationship between board composition and performance, see Demsetz and Lehn(1985), Weir, Laing and Mcknight (2002). During the 1990s, the UK had changed dramatically the board composition and duality. This change gives a good opportunity for researcher to alleviate the problems that may arise from the possible endogeneity of board composition.

7.4.1.3 Timing issues

Timing of hiring the non-executive directors is also important in measuring performance. Based on this explanation, firms add non-executive directors during periods of poor performance. This makes the relationship between the boards and performance obscure, see Hermalin and Weisbach (2003).

7.4.1.4 Data issues

Prior studies have focused on US companies which have been dominated by non-executive directors for many years. This makes it difficult for researcher to find boards with few non-executive directors to serve as a control group (Dahya and McConnell, 2003).

7.4.2 Board study Design

7.4.2.1 Introductions

This thesis uses data measured for the period from 1989 to 2000 to investigate indirectly the impact of board activity on performance and risk. Whilst there are limitations that will become apparent later this approach was thought to be adequate to investigate the research questions posed. The approach to analysis has

been to start with descriptive statistics, which will provide insight into the underlying trends. The use of means and error bars investigating a single issue over differing time periods. This will be supported where appropriate with non-parametric testing using for example Mann-Whitney tests. Regression models will be used to explore several of the relationships, which have been already discussed in early Chapters. In order to analyse the impact of CG codes on several variables, such as performance and risk, three periods are used; 90-92, 93-95, and 96-98. The rationale of the three periods is based on the UK CG code publication. The Cadbury Report was published in 1992, the Greenbury in 1995, and the Hampel Code and Combined Code in 1998. Therefore this study used 1993 the first year of Cadbury Report and took next 3 year as one group.

7.4.2.2 Changes of Board structure and Board member tenures

The research will explore the impact of CG codes on board structures. Separation of chairman and CEO, the board composition and the number of non-executive officers on the board are investigated. The length of tenure of chairman, CEO, financial directors will be explored. The average tenure and the period of the tenure are analysed.

7.4.2.3 Board changes and tenure changes

The relationship between duality and tenure, and the relationship between percentage of NEO and tenure are analysed. Average and Mann-Whitney tests are used in each area.

7.4.2.4 Board changes and performance

The association between performance and corporate governance variables is analysed using Ordinary least square regression (OLS). The analysis was performed using two different model and two different independent variables and so four regression models are used. Both NI/TA and Tobin's Q (TQ) will be explored using regression expressions looking at separation, NEO30P and PNEO, size and CLCA. Separation is 1 if the roles of CEO and chairman are separated, 0

otherwise, NEO30P is a binary variable taking value 1 if a firm has more than 30 percent non-executive directors in the board and 0 otherwise, PNEO is the percentage of non-executive directors in the board, Size is the natural log of market capitalisation (Demsets and Lehn(1985) report that size is associated with ownership concentration) and CLCA is current liability divided by current assets.

$NI/TA = \beta_0 + \beta_1 \text{Separation} + \beta_2 \text{NEO30P} + \beta_3 \text{size} + \beta_4 \text{CLCA} + \varepsilon$ -- (Model 1-1)

$NI/TA = \beta_0 + \beta_1 \text{Separation} + \beta_2 \text{PNEO} + \beta_3 \text{size} + \beta_4 \text{CLCA} + \varepsilon$ -- (Model 1-2)

$TQ = \beta_0 + \beta_1 \text{Separation} + \beta_2 \text{NEO30P} + \beta_3 \text{size} + \beta_4 \text{CLCA} + \varepsilon$ -- (Model 2-1)

$TQ = \beta_0 + \beta_1 \text{Separation} + \beta_2 \text{PNEO} + \beta_3 \text{size} + \beta_4 \text{CLCA} + \varepsilon$ -- (Model 2-2)

7.4.2.5 Board changes and firm risks

Z-score and firm-specific risks are analysed both duality-separation and NEO difference. Error bar and Mann-Whitney test are used.

7.5 Research Design for Ownership

7.5.1 Methodology issues

There are two main sets of issues reported in the literature; firstly the endogeniety of the ownership structure and secondly that the issues of non-linearity relation between ownership and performance.

7.5.1.1 Endogeniety verse Exogeneity

Demsetz (1983), Demsetz and Lehn (1985) and Kole (1994) suggest that managerial ownership structures are endogenously determined. They see the ownership structure as an endogenous outcome from the maximizing process, which the ownership structure is endogenously determined in equilibrium. Demsetz and Lehn (1985) find that managerial ownership is the function of market risk on stock volatility. Therefore the incentive to hold large stocks of their companies decreases as the risk of the stock increases. In this situation, the firms owning structure are decided by those who own it, this results in no systematic relationship between ownership and performance. Cho (1998) also states

regression results produce inconsistent coefficient to the extent that ownership structure is endogenously determined. While Morck et al. (1988) and McConnell and Servaes (1990) report the ownership structure as exogenous, result in a positive correlation between performance and institutional shareholders.

7.5.1.2 Linear verse Non-linear (non-monotonic)

Based on the assumption of ownership structure as exogenous, the ownership-performance relation studies show two different results. The issue of linear or non-linear relations is that performance increase with ownership to a certain level, performance decreases. The non-linear relationship is explained due to management entrenchment in managerial ownership studies. When managers have enough power to control the company, they pursue their own objectives at the cost of shareholder values Morck et al. (1988), McConnell and Servaes (1990), Hermalin and Weisbach (1991), Agrawal and Knoeber (1996) and Short and Keasey (1999), though Cho (1998) reports that it is linear and corporate value determines managerial ownership.

7.5.2 Research Design

7.5.2.1 Introductions

The ownership study was done to complement the UK codes study. Previous studies have not provided the reason for not following the UK codes. This study suggest that the ownership may impact on the implementing the UK codes.
The ownership in this study used board ownership and institutional ownership. The board ownership in this study uses BFA data, BFA data represent the ownership of board members, their family and associates. Therefore the BFA data are more than board ownership, but this study assumes that family and associate follow the decision of the board member.

Before the Cadbury Report, there have been a large percentage of the institutional investors in each company. In this study, the institutional ownership is divided into two parts: the largest (Big 1) and the three largest (Big 3).

7.5.2.2 Ownership Structures changes

Board ownership (inside ownership) is shown through descriptive analysis. Shareholders of Big 3 and Big 1 Institutional Investors are demonstrated via descriptive analysis. The Big 3 shareholders represent the three institutional investors who hold the highest portion of the company. While the Big 1 shareholder is the Institutional Investors who has the highest portion of the share in the company.

7.5.2.3 Ownership change and tenure changes

The relationship between board ownership and tenure are analysed. Regression analysis is used.

7.5.2.4 Ownership changes and Board Structure

The relationship between duality and institutional ownership, and the relationship between percentage of NEO and institutional ownership are analysed by Mann-Whitey Test and regression.

Also the relationship between duality and institutional ownership, and the relationship between percentage of NEO and institutional ownership are analysed by Mann-Whitey Test.

7.5.2.4 Ownership and performance

The relationship between performance and ownership is studied using the two regression equations:

$NI = \beta_0 + \beta_1 BFA + \beta_2 size + \beta_3 CLCA + \varepsilon$

$TQ = \beta_0 + \beta_1 BFA + \beta_2 size + \beta_3 CLCA + \varepsilon$

where BFA is the percents of the voting share interest held by member of board, their families and associates, size is the natural log of market capitalisation. Demsets and Lehn (1985) report that size is associated with ownership concentration. CLCA is current liability divided by current assets.

7.5.2.5 Ownership and risk

For the measure of firm risks, three measure are used: Z-score, firm-specific risk and total liability. Regression is used in the analysis.

7.6 Research Design for Reporting Quality and Conservatism

7.6.1 Methodology issues

7.6.1.1 Limitation of discretionary models

The Jones model orthogonalises total accruals with respect to revenues and extracts the discretionary component of accruals, causing the estimate of earning management to be biased toward zero. This will increase the probability of type II error, not rejecting null hypothesis, there are no earning management, when the null hypothesis is not true. As Jones model assume that revenue is nondiscretionary, there is more possibility that type II error. Thus it is more likely to prove no earning management when there is earning management.

7.6.1.2 Limitation of conservatism models

Previous research document negative relationship among different conservative measure, see Givoly et al. (2003), Pope and Walker (2002). Also the models do not fully catch the conservative pattern.

7.6.2 Measuring Reporting Quality

7.6.2.1 Introduction

Discretionary accruals are used to measure the reporting quality. Discretionary accruals are the deduction of non-discretionary accruals from total accruals. Two statistical methods are used to measure the non-discretionary: Pooling time series and regression analysis. Following Qiang (2003), the research used accumulated discretionary accruals. Longitudinal data analysis and Cross sectional regression analysis used to calculate the non-discretionary accruals

7.6.2.2 Longitudinal data analysis (pooled cross-sectional time series)

Longitudinal data analysis combines regression with time series analysis. The data is both regular temporal observation on a unit and cross-section observation. Among the longitudinal data analysis, a fixed effect model (the dummy variable model) is used.

$$TA_{it}/A_{it-1}=a_{1it}[1/A_{it-1}] + a_{2it}[\Delta REV_{it}/A_{it-1}] + a_{3it}[PPE_{it}/A_{it-1}] + \varepsilon_{it}$$

The fixed effect model assumes that only the intercept parameter varies and the intercept varies only across firms not over time (Hill et al., 2001). So that, $a_{1it} = a_{1i}$ $a_{2it} = a_2$ and $a_{3it} = a_3$. Therefore, all difference between individual firms and overtime are captured by the intercept

7.6.3 Measuring Conservatism using accruals

7.6.3.1 Accumulated accrual models

Givoly and Hayn (2000) used the cumulative non-operating accruals as their measure of conservatism. This study use two different models in calculation cumulated accruals.

Model 1

Model 1 follows Givoly and Hayn (2000)'s model.

TABD= Net Income + Depreciation – Cash from operation;
Operational Accruals = working capital accruals = ΔAR + Δ Inventories +
Δ prepaid Expenses – Δ Account payable – Δ Tax payables
Non Operating accruals = TABD - Operational Accruals

Model 2

Model 2 used working capital accruals based on Jones model (1991).

TABD= Net Income + Depreciation – Cash from operation;
Working capital accruals = (ΔCA - ΔCASH) - (ΔCL-ΔSTD-ΔTP);
NWCA= TABD - WCA.

7.6.3.2 Cumulative accruals index models

To test the impact of corporate governance, cumulative accruals are evaluated based on governance scores. The governance scores are calculated on separation, percentage of non-executive directors and sum of the separation and percentage of NEO.

The scores for separation are generated by sum of separation scores for the periods of 1990 to 1998. If there is the separation of chairman and CEO in each year, the score is 1. Therefore the index for separation is the sum of the score for the periods.

$$\text{Separation score} = \sum (\text{during 1990- 1998})$$

The score for firms with more than 30% non-executive directors is the same for calculation for separation score. If the firms has more than 30% non-executive each year, the score for each year is 1.

$$\text{NEO score} = \sum (\text{during 1990- 1998})$$

Then the total score is the sum of separation score and NEO score.

$$\text{Total score} = \text{Separation score} + \text{NEO score}$$

7.6.3.3 Earning-return association using reverse regression

Basu's (1997) measure of conservatism assumes that earnings reflect bad news more quickly than good news. The timeliness of conservatism is measured by the extent to which the earning-return association is stronger during periods of negative returns as compared with periods of positive returns.

Basu (1997) used Beaver et al. (1980) reverse regression, with earnings as the dependent variables. Basu (1997) document that 'OLS standard errors and test statistics are better specified when the leading variable is specified as independent and lagging variables as dependent'.

This study also use cross sectional regressions of earnings on return as conservatism measurement. The regression equation is following:

$$X_{it} = \alpha_{0t} + \beta_1 R_{it} + \varepsilon_{it}$$

where X_{it} is firm i's earnings deflated by the market value of equity at the beginning of the fiscal year and R_{it} is the market rate of return on firm for the year ending three months after fiscal year ending.

The cross-sectional regression coefficient β_i measures the timeliness with which earnings reflect annual returns. The measure of conservatism, following Pae et al (2004), is the sensitivity difference in β_1 between good news and bad news.

$$\text{Difference} = \beta_1^{BN} - \beta_1^{GN}$$

7.6.3.4 Book to market

BTM_{it} is the book to market ratio for firms i at t, calculated by book value of common equity divided by market value of equity. Lower BTM indicates higher conservatism. In the relation between duality and separation, Firms with separation have lower BTM ratio through the three periods. Also in the relation between percentage of NEO and BTM, firms with higher percentage of NEO has lower BTM ratio, indicating higher conservatism.

7.7 Research Design for Risk Modelling

7.7.1 Methodology issues

7.7.1.1 Difficult to find comprehensive risk model

It is difficult for those outside a firm to be able to predict its default. A reason is that firm will tend to keep secret the financial pressure until the default occurs. Every default model has its limitation. So far, there is no single model to indicate the risk of the company. Accounting model uses accounting measures which

based on historical data. Market model uses stock market information to evaluate the firm risks. The market information is the prediction of the future, but the market is not a perfect reflection of the company information.

7.7.1.2 Bias from sampling methods

Non-random sample

The typical procedure used in the default studies is to draw a sample with an approximately equal number of bankrupt and non-bankrupt firms, referred to as a paired sample. This type of sample is not a pure random sample since there is an element of choice in matching the firms.

There are, however, advantages in the paired sample approach. The primary advantage is the efficiency. If a random sample were to be drawn from a population, the bankrupt sample would only be a small part of the sample. It does mean that the sample tends to be small and so this may lead to relatively imprecise parameter estimates (Manski and McFadden 1981)

The disadvantages are serious. Non-random sample leads to biased and incorrect inference (Palepu, 1986). The match sample cannot be distinguished from different forms of survival, (Astebro and Winter, 2002). Prediction accuracy may be overstated (Palepu, 1986, Zmijewski, 1984)

Palepu(1986) states that if the purpose of the study is only to rank probability, the bias is unimportant, but if the estimated parameters are used to test hypothesis, the bias and inconsistency become important. Zmijewski (1984) finds that the bias from non-random samples do not appear materially affect the overall classification rates.

Random sample

Alternative it is possible to consider a random sample approach. In such the aim would be to random sample from both populations. Keasey and Watson (1991)

suggest the 'ideal' approach, 'Ideally, the control sample should be a random sample of non-failed firms with data covering the same year as the failed sample'.

7.7.2 Design for accounting default models

7.7.2.1 Introduction

To overcome the narrow coverage of the each default model, several default models are used. Also to some extent it is possible to remove the sample biases by using non-matched samples. For each model, default firms are from financially distressed and delisted firms during 1990s. Five data set are used to build the default models: 90-92, 93-95, 96-98, 99-01and 90-01. For the example, 9092 data include 23 default firm data in the default year and 306 firms data during the periods of 1990 to 1992. Based on the data, the coefficients are calculated by logit regression. Then the probabilities of default are calculated over the all periods.

7.7.2.2 Samples for financially distressed and delisted data

For a failed company to be included in the sample, it had to satisfy the following criteria: financial statement data is available from OSIRIS during the periods of 1990-2000, the firms are financially distressed, delisted, and Stock market data is available from database.

Most delisted firms in 1990s are in the late 1990s in the OSIRIS database. Especially the year 1998 has the highest de-list rate in the 1990s. The application of the above criteria resulted in a sample of 23 failed companies.

Table 7.3: Failed Company choosing processes

SIC	All	list	De-list	Year of delist for 90s							FD sample firms				
				90	95	96	97	98	99	00	97	98	99	00	Sum
20	66	43	23				1	6	3	2		2	2		4
28	116	74	42			1	3	10	12	3		1	4	1	6
35	73	43	30	1			3	10	4	3	1	2	1		4
36	93	64	29				5	7	5	1		1	1		2
37	41	23	18		1		1	6	2	2		2	1	1	4
38	47	33	14					2	2	2		2	1		3
Sum	436	280	156	1	1	1	13	41	28	13	1	10	10	2	23

Table 7.4: List of failed company

Company Name	Failed Year	SIC	Asset size
ASPEN COMMUNICATIONS PLC	1997-12-31	36	43,440
SOLVERA PLC	1998-03-31	36	24,692
ADWEST AUTOMOTIVE PLC	1998-06-30	37	160,647
FOCUS DYNAMICS PLC	1998-07-31	35	17,945
BRIDPORT PLC	1998-07-31	37	21,647
IOC INTERNATIONAL PLC	1998-09-30	36	11,523
BRENT INTERNATIONAL PLC	1998-12-31	28	64,900
FORWARD TECHNOLOGY INDUSTRIES	1998-12-31	35	21,725
CHIROSCIENCE GROUP PLC	1999-02-28	28	80,300
METROTECT INDUSTRIES PLC	1999-03-31	28	10,570
CPL AROMAS PLC	1999-03-31	28	28,390
CALLUNA PLC	1999-03-31	35	13,969
POWERSCREEN INTERNATIONAL PLC	1999-03-31	35	154,748
WHITECROFT PLC	1999-03-31	36	62,905
QUADRANT HEALTHCARE PLC	1999-12-31	28	30,383
SCOTIA HOLDINGS PLC	1999-12-31	28	45,289
OXFORD MOLECULAR GROUP PLC	1999-12-31	28	33,599
HICKSON INTERNATIONAL PLC	1999-12-31	28	187,100
SHALIBANE PLC	1999-12-31	37	14,087
CROWN EYEGLASS PLC	2000-04-02	38	3,964
ELBIEF PLC	2000-04-30	38	4,623
BROOKE INDUSTRIAL HOLDINGS PLC	2000-09-30	35	29,484
CANTAB PHARMACEUTICALS	2000-12-31	28	32,243

7.7.2.3 Control samples

To identify the effect of negative earnings in default model, this research employed five different matching periods with 23 financially distressed firms. The matching periods are divided by 1990-1992, 1993-1995, 1996-1998, 1999-2001, and 1990-2001 periods. The approach results in 5 sets of coefficients for Z-score model and O-score model.

Table 7.5: Z-score model sample composition

	WCTA	RETA	EBITTA	MVTL	SALETA
Distress sample	23	23	23	23	23
90-92 data	306	306	306	306	306
93-95 data	380	380	380	380	380
96-98 data	555	555	555	555	555
99-01 data	687	687	687	687	687
90-01 data	1928	1928	1928	1928	1928

Table 7.6: O-score model sample composition

Data	SIZE	TLTA	WCTA	CLCA	NITA	CFO	NNP	TLTA	NIABS
Distress	23	23	23	23	23	23	23	23	23
90-92	320	320	320	320	320	266	320	320	320
93-95	436	436	436	436	436	379	436	436	435
96-98	599	599	599	599	599	527	610	599	600
99-01	744	744	744	744	744	614	742	743	742
90-01	2099	2099	2099	2099	2099	1786	2108	2098	2097

7.7.2.4 Logit Regression

Based on the data, the coefficients are calculated by logit regreesion. Then the probabilities of default are calculated over the all periods. Therefore, Z-score and O-score models have 5 different sets of data. To check how the coefficients change over the 1990s, the periods are divided by 5 periods: 1990-1992, 1993-1995, 1996-1998, 1999-2001, and 1990-2001. For the periods of 1990-1992, the coefficients are estimated using FD outcomes in 1990s and 1990-1992 listed firms that have not de-listed until 2001. For the second periods of 1993-1995, the coefficients are estimated using FD outcomes in 1990s and 1993-1995 listed firms that have not de-listed until 2001. This process continues to the 1990-2001 periods. The approach results in 5 sets of coefficients for Z-score model and O-score model.

7.7.3 Design for Merton-type default models

7.7.3.1 Introduction

The Merton-type model is used as bench mark to compare with Altman model and Ohlson Model. Among the Merton-type models, this study utilised the both the KMV model and Hillegeist et al (2004) Model.

7.7.3.2 Data for Merton Default modelling

The initial sample consists of from 230 to 334 in respect of each year during the 11-year period 1990-2000. After calculating the default probability, the final dataset consists of from 130 to 224 in respect of each year. See Table 7.7

Table 7.7 Data for Merton Default modelling

(a) The initial data

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
MV	230	232	234	252	282	310	338	355	364	363	334
Ve	208	210	213	225	250	268	299	315	330	319	295
X	174	183	192	215	250	286	317	334	343	326	308
σ_E	203	209	211	217	235	255	268	293	318	311	283

MV= market value of the firm's assets, ve=market value of equity, X= book value of total liability σ_E = volitarity of returen

(b) The final data after calculation

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
All	130	136	148	159	180	204	223	239	270	243	224
List	105	110	117	123	134	140	155	168	182	156	144
delist	25	26	31	36	46	64	68	71	88	87	80

Table 7.8 : 1 year T-bill rate

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
rate	7.88	5.88	3.89	3.43	5.31	5.95	5.53	5.63	5.05	5.08	6.11

7.7.7.3 Calculation processes

To use as bench mark Merton-type model is utilized which is defined as followed.

$$V_E = V_A N(d_1) - X e^{-rT} N(d_2) \qquad (1)$$

where

$$d_1 = \frac{\ln(\frac{V_A}{X}) + (r + 0.5\sigma_A^2)T}{\sigma_A\sqrt{T}}, \quad d_2 = d_1 - \sigma_A\sqrt{T}$$

$$\sigma_E = \frac{V_A}{V_E} N(d_1)\sigma_A \qquad (3)$$

V_E = the current market value of equity

V_A = the firm's assets value, with an instantaneous drift μ, and an instantaneous volatility σ_A

X = the book value of the debt at time t, that has maturity equal to T

r = risk-free rate of interest

σ_A= the volatility of assets value, the standard deviation of asset return

N = the cumulative density function of the standard normal distribution

μ = the continuously compounded expected return on assets

To estimate $\mathbf{V_A, \sigma_A}$ simultaneously, solve the call option equation (1) and optimal hedge equation (3). SAS program is used to solve the equation (1) and (3), following is the coding of the program including partial data.

- The starting values of V_A equal to book value of liabilities plus the market value of equity
- The starting value of $\sigma_A = \sigma_E V_E / (V_E + X)$.
- V_E is set to equal to total market value of equity based on closing price at the end of the firm's fiscal year.
- σ_E is computed using daily return data over the entire fiscal year
- X is set equal to the book value of the total liability
- T equals one year
- r is one year Treasury bill rate

7.7.7.4 Models

Model 1 estimated μ (the expected market return on assets) in following equation.

$$\mu(t) = \max[\frac{V_A(t) - V_A(t-1)}{V_A(t-1)}, r]$$

$$\text{BSM-Prob} = N(-\frac{\ln(\frac{V_A}{X}) + (\mu - 0.5\sigma_A^2)T}{\sigma_A\sqrt{T}}) \quad \text{----------Model 1}$$

Model 2 used r as market return on assets. r is I year T-bill rate.

$$\text{BSM-Prob} = N\left(-\frac{\ln\left(\frac{V_A}{X}\right) + (r - 0.5\sigma_A^2)T}{\sigma_A\sqrt{T}}\right) \text{----------Model 2}$$

7.8 Conclusion

This chapter described the designed for research. This research follows the positivistic approach. Even though several flaws, the positivistic approach is still most used approach in finance and accounting researches. Data sample and collection was a long tedious process. Data were collected on 436 firms covering board, tenure, ownership, performance and risk data.

The overall issue on performance study is the measurement data. The strength and weakness of the both Net income and Tobin's Q are studied. Then the research approach for each area is detailed. Each design consists of the methodology issues and study design. The methodology issues deal with research problem in that area. Then the research describes the approach later.

The major issue in research design is the limitation of the models. This is particularly true of risk. To overcome this problem several alternative models are employed.

CHAPTER 8
ANALYSIS

8.0 Introduction

This chapter provides the results of the analysis of this study. The impact of UK Codes on changes of boards and board member tenures is described in first section. This includes the changes in separation between chairman and chief executive office (CEO), the changes in non-executive officers (NEO) percentages on boards and changes of board composition. It also explores the changes in tenure of the board member: the chairman, CEO and financial director.

Section two focuses on changes of ownership; this explores both board ownership and institutional ownership. The relationship between the changes in board and tenure are considered in section three, where the impact of separation, NEO and board ownership on tenures is investigated. In section four, the influence of ownership to board structure is analysed. The ownership considered is that of the board, the largest 3 investors and the largest institutional investigators.

Section five is devoted to the impact of board structure changes on the performance. The measures of performance used are Net income, Tobin's Q and Z-score. The relation of board changes and firm risk is studied in section 6, where firm risks are measured using Altman's Z-score and Firm specific risk. Section 7 explores the influence of ownership on performance and risks. Only board ownership is considered and the measures of performance and risk are Net income, Tobin's Q, Z-score and Firm specific risks.

The quality of financial reporting and conservatism are investigated in section 8. The impact of board changes on conservatism is analysed in section 9. In section 10, the relationship between ownership conservatism is explored. The impact of conservative data on default models, which includes Altman's model, Ohlson's Model and Merton's model, is investigated.

8.1 Changes of Board and Tenure

8.1.1 Changes of Board Structure

(1) Separation of chairman and CEO

In 1990, 59% of the firms separated the chairman and CEO. The percentage increased rapidly during the 1993-1996 periods to 77%. By the end of the 2000, the table shows that 83% of all firms split the position of CEO and Chairman. Compared to pre-Cadbury periods, it had increased 20%. This evidence is similar to the results of previous studies, Dahya et al. (2002) and Faccio and Lasfer (1999). Table 8.1 gives detail of change over years 1990 to 2000.

Table 8.1: Change of chairman-CEO separation

	1990	1991	1992	1993	1994	1995	1996	1998	1999	2000
all	0.59	0.63	0.67	0.73	0.74	0.77	0.78	0.83	0.83	0.83
list	0.59	0.63	0.68	0.71	0.75	0.75	0.75	0.84	0.84	0.85
delist	0.58	0.62	0.64	0.76	0.74	0.80	0.83	0.80	0.81	0.79

Among the industry, SIC 20 (Food and kindred products) and SIC 28 (chemical and allied product) shows highest rates of separation of CEO and chairman, see Table 8.2. This higher rate was seen before the Cadbury Report. Compared to other industries, SIC 20 and SIC 28 have 60-70 percent companies with separation between chairman and CEO. SIC 36, SIC 37and SIC 38 show relatively lower rate of separation of CEO and chairman.

Table 8.2: Separation over time by SIC

SIC	1990	1991	1992	1993	1994	1995	1996	1998	1999	2000
20	0.70	0.69	0.71	0.81	0.66	0.74	0.86	0.81	0.85	0.88
28	0.60	0.74	0.78	0.85	0.80	0.78	0.82	0.87	0.87	0.89
35	0.60	0.62	0.69	0.78	0.80	0.87	0.82	0.80	0.92	0.81
36	0.44	0.46	0.60	0.60	0.74	0.74	0.74	0.76	0.72	0.77
37	0.59	0.60	0.63	0.62	0.79	0.81	0.72	0.88	0.83	0.81
38	0.62	0.59	0.48	0.62	0.60	0.65	0.67	0.86	0.77	0.79

(2) Change of Non-executive office (NEO) percentages in the board

Table 8.3 shows percentage of firms with NEO in each year. In the beginning of the 1990, 45% of firms have more than 3 non-executive directors, but 72% firms have more than 3 non-executive directors in the 2000. This is highlighted in Figure 8.3.

Table 8.3: Presents percentage of NEO over time

	1990	1991	1992	1993	1994	1995	1996	1998	1999	2000
NEO=0	0.10	0.10	0.02	0.04	0.03	0.03	0.02	0.00	0.00	0.00
NEO=1	0.26	0.21	0.18	0.16	0.16	0.07	0.07	0.07	0.07	0.05
NEO=2	0.19	0.24	0.30	0.24	0.26	0.26	0.25	0.20	0.21	0.22
NEO=3-5	0.39	0.36	0.43	0.48	0.48	0.59	0.60	0.65	0.62	0.61
NEO>6	0.06	0.08	0.07	0.08	0.07	0.06	0.06	0.08	0.09	0.11

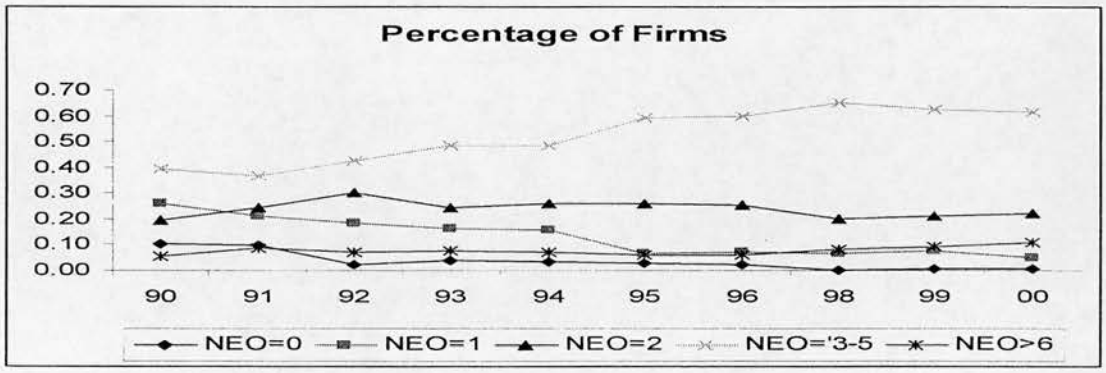


Figure 8.1: Trends in NEO over time.

(3) Change of Board Composition

The average size of the board of directors was 7.1 to 7.3 over the 1990s. The average size has not changed. The average number of non-executive directors, however, has increased from 2.4 to 3.6. Corporate boards were comprised of between 32% and 36% of non-executive directors in pre-Cadbury periods, and this figure had risen to between 40% and 49% in post-Cadbury periods. This increasing number of non-executive directors with constant number of total board number indicates that inside directors are substituted by outside directors. These statistics indicate that Cadbury report have impacted the composition of Boards. Table 8.4 gives the details of the changes.

Table 8.4: Details of the Changes in Membership of Board over time

	Number of all directors			Number of Exe director			Number of NEO			Per cent Of NEO		
Year	All	List	Delist	All	List	Delist	All	List	Delist	All	List	Delist
1990	7.1	7.2	7.0	4.7	4.7	4.7	2.4	2.5	2.3	0.32	0.33	0.32
1991	7.5	7.8	7.1	4.9	5.1	4.7	2.6	2.7	2.5	0.34	0.34	0.34
1992	7.3	7.7	6.7	4.6	4.8	4.2	2.8	2.9	2.6	0.36	0.36	0.36
1993	7.4	7.7	7.0	4.6	4.8	4.2	2.9	2.9	2.9	0.38	0.38	0.39
1994	7.2	7.4	6.8	4.3	4.5	3.9	2.9	2.9	2.9	0.40	0.39	0.42
1995	7.4	7.7	7.0	4.2	4.4	3.9	3.2	3.3	3.1	0.43	0.42	0.44
1996	7.2	7.4	6.9	4.0	4.1	3.9	3.2	3.3	3.1	0.44	0.44	0.44
1998	7.3	7.6	6.8	3.9	4.1	3.6	3.4	3.5	3.3	0.47	0.47	0.48
1998	7.2	7.4	7.0	3.8	3.8	3.8	3.4	3.5	3.2	0.47	0.48	0.46
1999	7.3	7.3	7.2	3.7	3.7	3.6	3.6	3.6	3.5	0.49	0.49	0.50

8.1.2. Changes of Board Member Tenure

(1) Changes of Chairman Tenure

Figure 8.2 also shows the tenure of chairman. In 1992, ten percent of companies have new chairperson. Clearly if the tenure is less than a year it indicates that the chairman is new to the company. This seems also to occur in again 1999, with ten percents of the firms having a new chairperson.

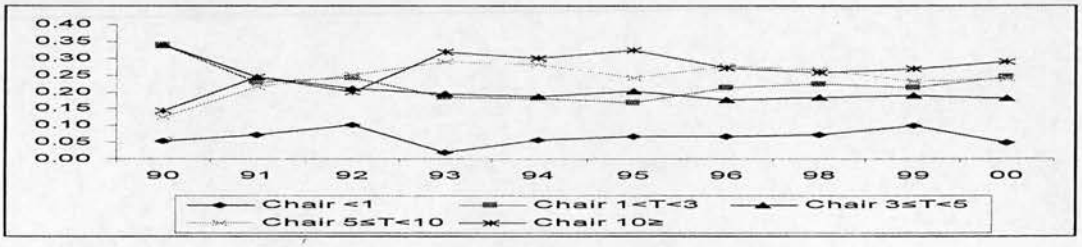


Figure 8.2: distribution of chairman tenure

Table 8.5: Distribution of chairman tenure

Tenure	1990	1991	1992	1993	1994	1995	1996	1998	1999	2000
<1	0.05	0.07	0.10	0.02	0.06	0.07	0.07	0.07	0.10	0.05
1<T<3	0.34	0.23	0.24	0.18	0.18	0.17	0.21	0.22	0.21	0.24
3≤T<5	0.34	0.24	0.21	0.19	0.19	0.20	0.18	0.18	0.19	0.18
5≤T<10	0.13	0.21	0.25	0.29	0.28	0.24	0.28	0.26	0.23	0.24
10≥	0.14	0.24	0.20	0.32	0.30	0.32	0.27	0.26	0.27	0.29

Figure 8.3 shows the average tenure of Chairman during the 1990s and Table 8.6 gives the detail. There had been increasing the average tenure before 1992-1993, but the average tenure shortly decreased after 1993, which represents change in the Board structure in UK after the Cadbury Report. As the Cadbury Report recommended, more firms separated the chairman and CEO role, which results in the increase new chairman. Also after the 1998-1999 period, the increasing number of new chairmen results in the decreasing average tenure of the chairman.

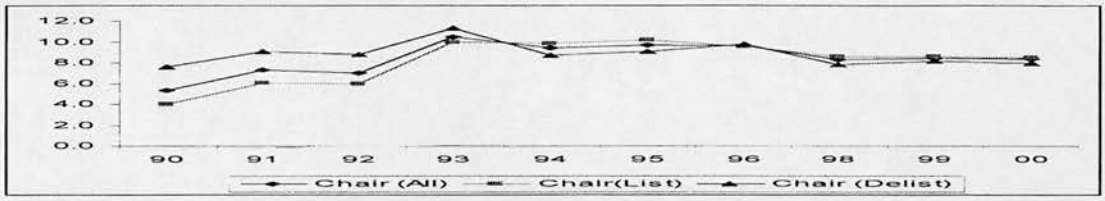


Figure 8.3: The tenure of Chairman during 1990s for all, list and de-listed firms.

Table 8.6: The average tenure of Chairman

	1990	1991	1992	1993	1994	1995	1996	1998	1999	2000
Chair (All)	5.3	7.3	7.0	10.4	9.4	9.7	9.6	8.3	8.4	8.3
Chair(List)	4.0	6.0	5.9	9.9	9.8	10.2	9.5	8.6	8.5	8.5
Chair (Delist)	7.6	9.1	8.8	11.3	8.7	9.0	9.7	7.8	8.1	7.9

(2) Changes of CEO Tenure

Figure 8.4 shows the pattern of tenure in CEO. There are two peaks in the line associated with appointment of new CEOs. These are 1992 and 1998 with nine percent in 1992 and ten percent in 1998. Throughout the 1990s, the longest tenures are in the range is 5 to 10 years, but the increasing pattern of the CEO tenure is between 1 to 3 years.

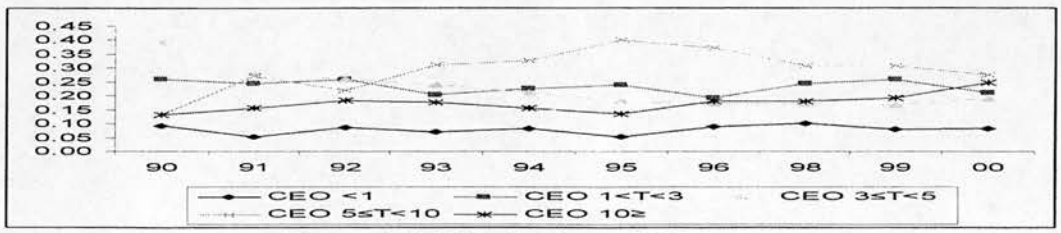


Figure 8.4: Distribution of CEO tenure

Table 8.7: Distribution of CEO tenure

	1990	1991	1992	1993	1994	1995	1996	1998	1999	2000
<1	0.09	0.05	0.09	0.07	0.08	0.05	0.09	0.10	0.08	0.08
1<T<3	0.26	0.24	0.26	0.20	0.22	0.24	0.19	0.24	0.26	0.21
3≤T<5	0.39	0.28	0.26	0.24	0.21	0.18	0.17	0.17	0.17	0.19
5≤T<10	0.13	0.27	0.22	0.31	0.33	0.40	0.37	0.31	0.31	0.27
10≥	0.13	0.15	0.18	0.18	0.16	0.13	0.18	0.18	0.19	0.25

Figure 8.5 shows the tenure of CEO. There is a turning point in 1992-1993 with the lowest point for all companies but for listed companies this is a high point. Overall, the average tenure of CEO is 6-7 year. The CEO tenure for listed companies is higher than that of delisted companies. This may be related to performance.

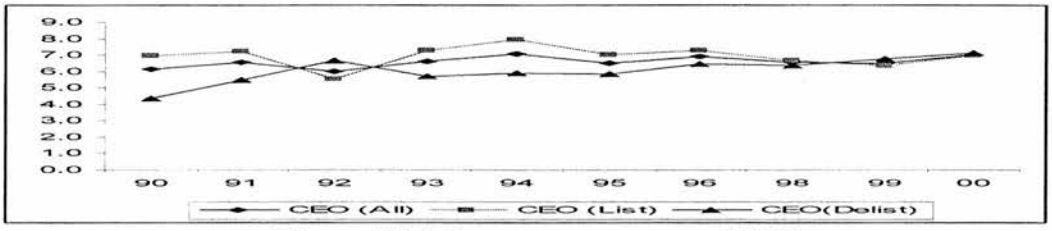


Figure 8.5: The average tenure of CEO

Table 8.8: The average tenure of CEO

	1990	1991	1992	1993	1994	1995	1996	1998	1999	2000
CEO (All)	6.1	6.6	6.0	6.6	7.1	6.5	6.9	6.5	6.5	7.0
CEO (List)	6.9	7.2	5.5	7.3	7.9	7.0	7.3	6.7	6.4	7.0
CEO(Delist)	4.3	5.5	6.7	5.7	5.9	5.8	6.5	6.3	6.8	7.1

(3) Changes of Financial Directors (FD) Tenure

Figure 8.6 and Table 8.9 show that period in 1990-1992 17 percent of companies have appointed new Financial Directors (FD), similar occurs in the period 1998. This pattern may reflect two effects. Firstly, the appointment of financial director is related to appointment of new CEO and new Chairman, see previous graphs. Another explanation is the financial director may move up to CEO or Chairperson.

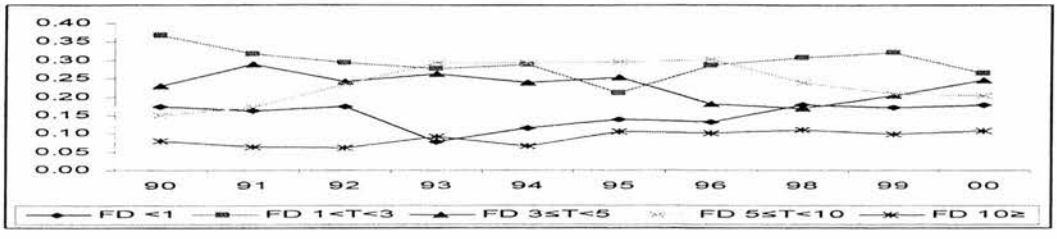


Figure 8.6: Distribution of Financial director tenure

Table 8.9: distribution of Financial director tenure

	1990	1991	1992	1993	1994	1995	1996	1998	1999	2000
<1	0.17	0.16	0.17	0.08	0.11	0.14	0.13	0.18	0.17	0.18
1<T<3	0.37	0.32	0.29	0.28	0.29	0.21	0.29	0.31	0.32	0.27
3≤T<5	0.23	0.29	0.24	0.26	0.24	0.25	0.18	0.17	0.20	0.24
5≤T<10	0.15	0.17	0.23	0.29	0.29	0.29	0.30	0.24	0.21	0.20
10≥	0.08	0.06	0.06	0.09	0.07	0.11	0.10	0.11	0.10	0.11

Figure 8.7 shows increasing pattern of FD tenure before 1995 but after 1995, there is a decrease, which may be accounted for by new financial directors being appointed in the UK firms. The tenure of financial director in delisted firms has shorter tenure that that of the listed firms.

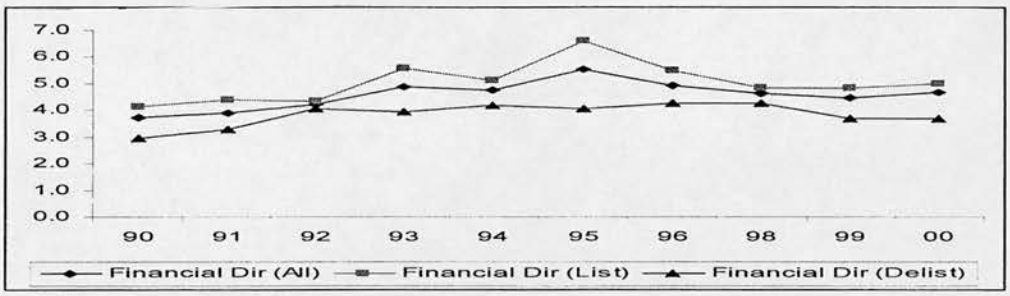


Figure 8.7: Average tenure of financial directors

Table 8.10: Average tenure of financial directors

	1990	1991	1992	1993	1994	1995	1996	1998	1999	2000
Fin Dir (All)	3.7	3.9	4.2	4.9	4.7	5.5	4.9	4.6	4.5	4.7
Fin Dir (List)	4.1	4.4	4.3	5.6	5.1	6.6	5.5	4.8	4.8	5.0
Fin Dir (Delist)	2.9	3.3	4.0	3.9	4.2	4.1	4.3	4.3	3.7	3.7

8.2 Changes of Ownership

8.2.1. Board ownership

The following graph, Figure 8.8, shows the average ownership by Directors or Directors' Family. The shares of the average board ownership are decreasing after 1992. The board ownership is amounted to 19.7% in 1990, and fell to 13.8% in 1998, but increased slightly after 1999.

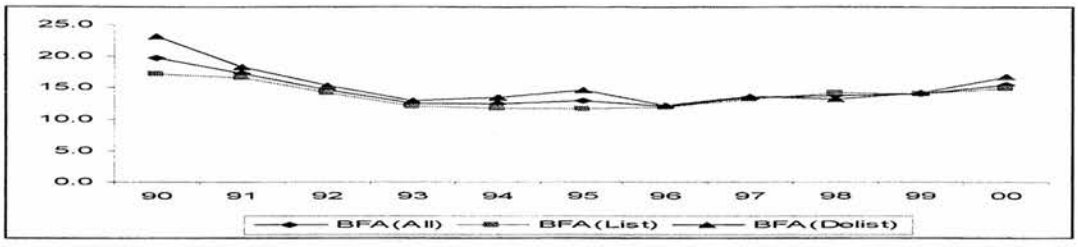


Figure 8.8: Average ownership of board

Table 8.11: Average ownership of board

	90	91	92	93	94	95	96	97	98	99
BFA(All)	19.7	17.3	14.7	12.5	12.5	12.9	12.1	13.4	13.8	14.1
BFA(List)	17.1	16.6	14.3	12.1	11.8	11.7	12.0	13.2	14.2	14.0
BFA(Delist)	23.1	18.2	15.3	12.9	13.5	14.6	12.1	13.6	13.2	14.1

The Figure 8.9 and Table 8.12 show the different board ownership across the industrial sectors. SIC 28 (Chemicals and allied products) shows lowest rate of board ownership during 1990s. While the SIC 36 and SIC 38 show relatively high percentage of average ownership.

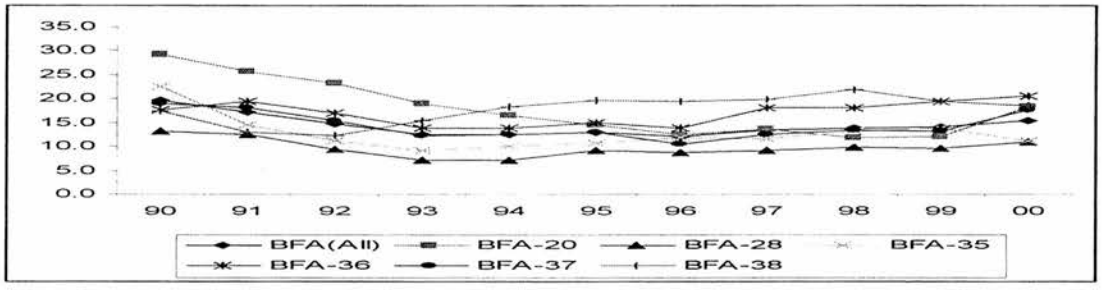


Figure 8.9: Average ownership of board in each sector

Table 8.12: Average ownership of board in each sector

	90	91	92	93	94	95	96	97	98	99
SIC 20	29.10	25.54	23.26	18.88	16.40	14.53	12.44	13.52	11.88	11.97
SIC 28	13.13	12.53	9.26	7.05	7.22	9.09	8.77	9.03	9.78	9.63
SIC 35	22.43	14.49	11.06	9.12	10.07	10.63	11.83	11.50	13.07	13.91
SIC 36	17.50	19.41	17.05	13.88	13.72	15.02	13.74	18.14	18.11	19.33
SIC 37	18.90	17.95	15.30	12.19	12.49	13.01	10.39	12.38	13.40	13.08
SIC 38	17.45	12.98	12.34	15.29	18.39	19.65	19.32	19.76	21.85	19.33

8.2.2 Changes of Institutional shareholders

(1) The largest three Institutional Investors

Institutions held around 75 to 80 per cent of the shares in the late 1990s, with pension funds alone owning about 35 per cent (Cadbury, 2002). The majority institutional

investors take a portfolio approach by taking small stakes in a large number of the companies (Vitols, 2001). Among the institutional shareholders, Figure 8.10 shows the largest three institutional shareholders. All the firms show very similar average ownership over the 1990s, which has 22-23 percentages of shares of the companies.

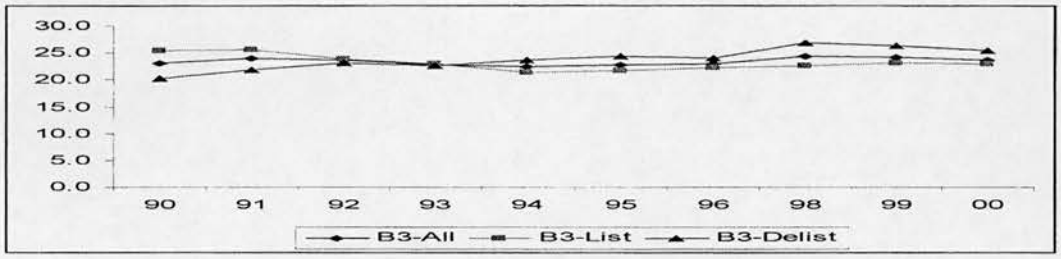


Figure 8.10: Average ownership of the largest 3 institutional investors

Table 8.13: Average ownership of the largest 3 institutional investors

	90	91	92	93	94	95	96	98	99	00
B3-All	23.1	23.9	23.6	22.7	22.3	22.8	22.9	24.3	24.2	23.5
B3-List	25.4	25.5	23.9	22.9	21.3	21.7	22.2	22.6	23.1	22.9
B3-Delist	20.30	21.78	23.14	22.47	23.56	24.30	23.96	26.88	26.22	25.46

In Figure 8.11 and Table 8.14, there is no particular difference in institutional ownership among industries. The range of ownership is between 22-24 percentages for all industry except SIC 35 (Industry, commercial machinery computer equipment).

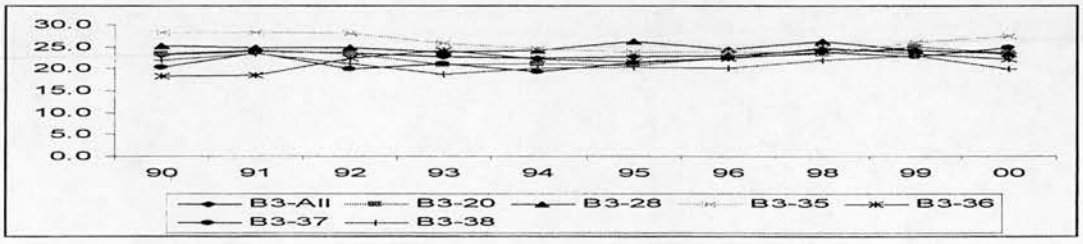


Figure 8.11: Average ownership of the largest 3 in each sector

Table 8.14: Average ownership of the largest 3 in each sector

	90	91	92	93	94	95	96	98	99	00
SIC 20	23.23	24.18	23.29	20.84	20.98	20.77	22.53	23.23	24.86	23.58
SIC 28	25.06	24.79	24.73	23.73	24.07	26.14	24.22	26.06	24.20	23.25
SIC 35	28.19	28.27	27.89	25.81	24.50	23.74	23.92	23.56	26.04	27.46
SIC 36	18.29	18.51	22.32	24.11	22.10	21.39	22.31	24.78	23.26	22.10
SIC 37	20.25	23.56	19.77	20.98	19.16	21.30	22.24	23.66	22.64	24.75
SIC 38	21.83	23.38	21.10	18.62	20.14	20.21	20.15	21.88	22.97	19.93

(2) The largest institutional Investors

Figure 8.12 and Table 8.15 show that the largest institutional investor holds on average 15.3 % stake in firm in 1990, and this falls to 12.9% in 2000. The pattern of shares of largest institution investor is the range of 12-13 percentages. The delisted companies show a little higher percentage of the largest institutional investors.

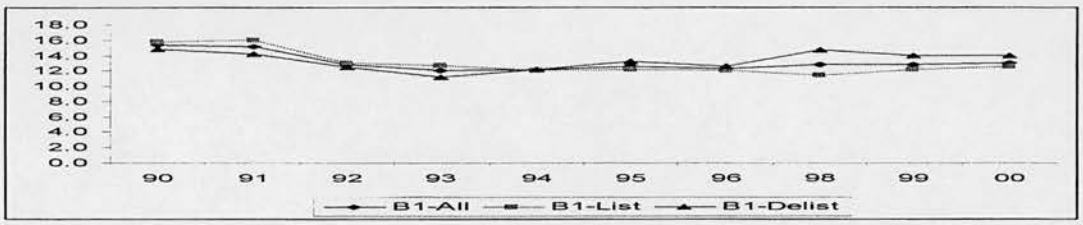


Figure 8.12: Average ownership of largest institutional Investors

Table 8.15: Average ownership of the largest institutional Investors

	90	91	92	93	94	95	96	98	99	00
B1-All	15.3	15.2	12.8	12.1	12.1	12.6	12.3	12.7	12.8	12.9
B1-List	15.7	16.0	13.0	12.7	12.0	12.2	12.0	11.4	12.2	12.6
B1-Delist	14.84	14.1	12.4	11.2	12.1	13.2	12.6	14.7	13.9	13.9

Before 1992, SIC 28 and SIC 37 show higher ownership of the largest investors, but by the end of 1999, the ranges of percentages of ownership by the largest investor is between 12% and 13%, see Figure 8.13 and Table 8.16.

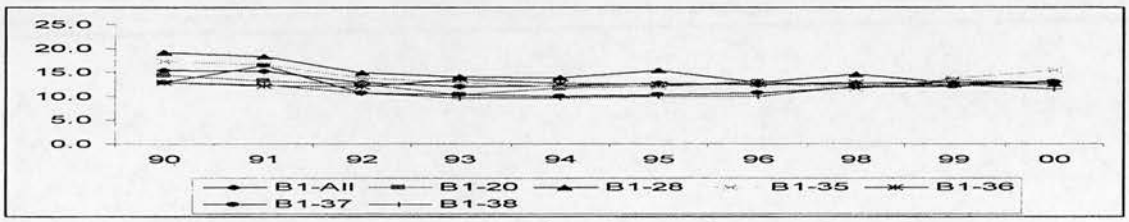


Figure 8.13: Average ownership of the largest investor in each sector

Table 8.16: Average ownership of the largest investor in each sector

	90	91	92	93	94	95	96	98	99	00
SIC 20	14.40	13.14	12.45	10.27	11.69	12.13	12.95	11.93	13.31	12.76
SIC 28	19.09	18.17	14.92	13.95	13.90	15.42	12.87	14.60	12.63	12.52
SIC 35	17.23	16.62	13.91	12.76	12.00	11.94	12.71	11.51	13.62	15.34
SIC 36	12.92	12.17	12.01	13.45	12.68	12.51	12.53	12.76	12.32	12.53
SIC 37	12.80	16.37	10.71	10.32	10.00	10.38	10.66	11.75	12.00	12.94
SIC 38	12.86	12.40	10.65	9.62	9.60	9.98	9.92	12.01	12.28	11.55

8.3 Board structure, Board ownership and Tenure

8.3.1. Duality and Board Member Tenure

(1) Duality and Chairman Tenure

In Table 8.17, firms with duality have longer tenure of chairman than firms with separation during the period of 1990-1998. In Table 8.18, Mann-Whitney test indicates that it is significant during the period of both 1990-1992 and 1993-1998. But the 1996-1998 periods shows not significant in the Mann-Whitney test.

Table 8.17: chairman tenure difference between dual firm and separation firm

	Chairman Average Tenure		
Year	Dual	Separation	Diff.
1990	5.9	4.4	1.6
1991	8.2	7.1	1.1
1992	9.1	6.4	2.8
1993	12.8	9.6	3.2
1994	11.4	8.5	2.9
1995	12.7	9.1	3.5
1996	13.6	8.7	4.9
1998	8.9	8.1	0.8
1999	7.9	8.5	-0.6
2000	5.0	7.0	-1.9

Table 8.18: Results of Mann-Whitney test in duality and chairman tenure

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
Dual	62			85			65		
Separation	160	-2.94	0.003	351	-2.85	0.004	365	-0.84	0.397

(2) Duality and CEO Tenure

Over the all period, there is difference between firm with separation and firms with duality are shown in Table 8.19. Firms with duality firms show longer CEO tenure. This pattern can be identified by the Mann-Whitney test, see Table 8.20. Over the three periods, the results are statistically significant.

Table 8.19: CEO tenure difference between dual and separation

	CEO Average Tenure		
	Dual	No dual	Diff.
1990	11.2	4.4	6.8
1991	7.0	6.5	0.5
1992	9.7	5.2	4.5
1993	12.1	5.4	6.7
1994	11.6	6.2	5.4
1995	11.9	6.0	5.9
1996	12.6	6.2	6.3
1998	10.3	6.3	4.0
1999	8.1	6.4	1.7
2000	0.4	6.0	-5.6

Table 8.20: Results of Mann-Whitney test in duality and CEO tenure

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
Dual	46			59			34		
Separation	187	-2.98	0.003	378	-4.55	0.000	380	-2.11	0.035

(3) Duality and FD Tenure

In 1990-1992 periods, it seems that firms with separation have higher average FD tenure, see Table 8.21. Yet this is not confirmed by the Mann-Whitney test in Table 8.22, which shows no difference between two groups. In 1993-1995, firm with separation has longer FD tenure than firms with duality, supported by Mann-Whitney test.

Table 8.21: FD tenure difference between dual and separation

	Financial Director Average Tenure		
	Dual	No dual	Diff.
1990	3.5	4.4	-0.9
1991	3.5	4.9	-1.4
1992	3.6	5.2	-1.7
1993	4.6	5.2	-0.5
1994	4.6	4.9	-0.2
1995	5.1	4.8	0.3
1996	5.2	4.7	0.4
1997	4.9	4.7	0.3
1998	4.7	4.6	0.1
1999	4.6	4.3	0.3
2000	2.7	2.6	0.1

Table 8.22: Results of Mann-Whitney test in duality and FD tenure

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
Dual	103			101			61		
Separation	206	-1.41	0.158	381	-2.57	0.010	361	-1.09	0.272

8.3.2 NEO Percentages and Board Member Tenure

(1) Percentage of NEO and Chairman Tenure

Table 8.23 shows the relationship between chairman tenure and NEO. Before 1996, firms with less than 30% NEO show longer tenure than firms with more than 30% NEO. This is confirmed by the Mann-Whitney test in Table 8.24. In the 1990-1992, firms with more than 30% NEO have longer tenure of chairman than firms with less than 30% NEO. This is also true for the 1993-1995 periods, but for the 1996-1998 periods the results differ.

Table 8.23: Chairman Tenure difference between NEO different firms

	Chairman Average Tenure		
Year	NEO<30%	NEO>=30%	Differences
1990	6.4	7.1	-0.7
1991	8.9	7.7	1.2
1992	9.9	6.5	3.3
1993	10.3	9.4	1.0
1994	11.4	9.0	2.4
1995	11.6	9.1	2.6
1996	12.0	8.8	3.2
1998	7.6	8.3	-0.8
1999	7.8	8.4	-0.6
2000	6.0	6.7	-0.7

Table 8.24: Results of Mann-Whitney test in NEO difference and Chairman tenure

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
NEO<30%	67			96			48		
NEO≥30%	159	-2.96	0.003	344	-2.22	0.026	382	-1.21	0.226

(2) Percentage of NEO and CEO Tenure

In 1990-1992 period, there is difference between those with more than 30% NEO and firms with less than 30% NEO, but after 1993, there is no difference between firms, see Table 8.25 and Table 8.26.

Table 8.25: CEO Tenure difference between NEO different firms

	CEO Average Tenure		
	NEO<30%	NEO>=30%	Differnce
1990	9.2	4.5	4.7
1991	7.2	6.4	0.8
1992	8.7	5.2	3.5
1993	9.0	6.4	2.6
1994	7.6	7.0	0.6
1995	6.7	6.8	-0.1
1996	6.4	6.8	-0.5
1998	6.2	6.5	-0.4
1999	4.2	6.5	-2.3
2000	3.4	5.3	-2.0

Table 8.26: Results of Mann-Whitney test in NEO difference and CEO tenure

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
NEO<30%	78			82			45		
NEO≥30%	159	-3.30	0.001	354	-0.15	0.877	370	-1.07	0.281

(3) Percentage of NEO and Financial Director Tenure

In the period of 1990-1992, Firms with more than 30% NEO show longer FD tenure than firms with less than 30% NEO, but after 1993, there are no difference in statistically; see Table 8.27 and Table 8.28.

Table 8.27: FD Tenure difference between NEO different firms

	Financial Director Average Tenure		
	NEO<30%	NEO>=30%	Differnce
1990	3.6	4.0	-0.4
1991	3.4	4.4	-1.0
1992	3.4	4.3	-0.9
1993	3.9	4.7	-0.8
1994	4.6	5.0	-0.4
1995	3.6	5.3	-1.7
1996	4.3	5.1	-0.8
1997	4.1	5.2	-1.1
1998	4.2	4.8	-0.6
1999	3.2	4.5	-1.2
2000	2.4	2.6	-0.2

Table 8.28: Results of Mann-Whitney test in NEO difference and CEO tenure

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
NEO<30%	112			97			60		
NEO≥30%	202	-2.55	0.011	386	-0.66	0.505	364	-0.01	0.993

8.3.3 Board Ownership and Tenure

(1) BFA and Chair Tenure

Using regression, board ownership is positively related to chairman tenure in 93-55 periods and 96-98 periods, see Table 8.29. The higher board ownership is the higher chairman tenure.

Table 8.29: BFA and Chair tenure

	90-92			93-95			96-98		
Model1	Dependent=Chair Tenure			Dependent=Chair Tenure			Dependent=Chair Tenure		
	Coefficient	t	sig	Coefficient	t	sig	Coefficient	t	sig
constant	-10.001	-1.616	0.108	-19.569	-4.063	0.000	-8.779	-2.040	0.042
BFA	0.050	1.694	0.092	0.116	4.056	0.000	0.149	5.785	0.000
capln	0.947	2.906	0.004	1.504	5.950	0.000	0.909	3.983	0.000
R square	0.047			0.103			0.074		
Adj R^2	0.036			0.098			0.070		
F-statistics	4.272			19.867			19.098		

(2) BFA and CEO Tenure

Board ownership is positively related to CEO tenure in 93-55 periods and 96-98 periods, see the regression results in Table 8.30.

Table 8.30: BFA and CEO Tenure

	90-92			93-95			96-98		
Model1	Dependent=CEO Tenure			Dependent=CEO Tenure			Dependent=CEO Tenure		
	Coefficient	t	sig	Coefficient	t	sig	Coefficient	t	sig
constant	8.068	0.976	0.331	-6.984	-2.243	0.026	1.491	0.512	0.609
BFA	-0.030	-0.589	0.557	0.110	5.624	0.000	0.100	5.759	0.000
capln	-0.070	-0.151	0.880	0.666	4.093	0.000	0.242	1.571	0.117
R square	0.002			0.097			0.072		
Adj R^2	-0.010			0.092			0.068		
F-statistics	0.177			18.426			16.700		

(3) BFA and FD Tenure

The tenure of financial director is not related to Board Ownership, see regression results for the 3 periods in Table 8.31.

Table 8.31: BFA and FD Tenure

	90-92			93-95			96-98		
	Dependent=Financial Dir Tenure			Dependent=Financial Dir Tenure			Dependent=Financial Dir Tenure		
	Coefficient	t	sig	Coefficient	t	sig	Coefficient	t	sig
constant	4.511	1.317	0.190	5.089	1.767	0.078	6.683	2.347	0.020
BFA	0.005	0.265	0.791	-0.010	-0.630	0.530	-0.020	-0.989	0.324
capln	-0.030	-0.187	0.852	0.007	0.043	0.965	-0.070	-0.495	0.621
R square	0.002			0.002			0.003		
Adj R^2	-0.014			-0.006			-0.003		
F-statistics	0.105			0.251			0.495		

8.4 Ownership and Board structure

8.4.1. Board Ownership and Board Structures

(1) Board Ownership and duality

It appears that the board ownership is different under duality and separation with duality showing higher board ownership board see Table 8.32. The difference is significant after the 1993 see Table 8.33 using Mann-Whitney test statistics.

Table 8.32: Average Board ownership difference under duality and separation

	BFA		
	Dual	Separation	Differnce
1990	21.9	19.0	2.9
1991	19.8	16.3	3.5
1992	19.0	13.8	5.1
1993	16.0	10.6	5.4
1994	18.6	10.5	8.2
1995	18.6	11.7	6.9
1996	15.9	11.3	4.6
1998	23.5	12.5	11.0
1999	28.7	12.5	16.2
2000	21.8	14.9	6.9

Table 8.33: The results of Mann-Whitney test between duality and Separation

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
Dual	144			113			91		
Separation	253	-1.9	0.058	405	-3.4	0.001	518	-3.83	0.000

The regression results are the same as that of Mann-Whitney test, see Table 8.34. Separation is negatively related to BO in the 93-95 periods and 93-98 periods. The lower the percentage of BO, the higher the rate of separation is.

Table 8.34: Results of Regression between duality and Separation

	90-92			93-95			93-98		
Model1	Dependent=Separation			Dependent=Separation			Dependent=Separation		
	Coefficient	t	sig	Coefficient	t	sig	Coefficient	t	sig
constant	0.199	0.742	0.458	0.527	2.629	0.009	0.378	2.490	0.013
BFA	-0.002	-1.500	0.134	-0.003	-2.994	0.003	-0.003	-3.155	0.002
capln	0.030	1.847	0.005	0.020	1.504	0.133	0.030	3.439	0.001
R square	0.026			0.033			0.053		
Adj R^2	0.021			0.029			0.050		
F-statistics	5.189			8.671			16.685		

(2) Board Ownership and NEO

Table 8.35 shows that the firm with less than 30% NEO have greater board ownership than a firm with more than 30% NEO and the differences in mean are significant using Mann-Whitney test statistic over the whole period, see Table 8.36. Jensen (1993) and Hermalin and Weisbach (1991) found a similar result, stating that as managerial ownership increases, the percentage of NEO diminishes.

Table 8.35: BFA difference between NEO different firms

	BFA		
	NEO<30%	NEO>=30%	Difference
1990	30.4	14.2	16.1
1991	27.9	11.6	16.3
1992	23.5	11.4	12.1
1993	20.7	8.5	12.1
1994	24.8	9.6	15.3
1995	29.7	10.1	19.6
1996	27.4	9.2	18.2
1998	35.2	11.3	23.9
1999	39.4	12.1	27.3
2000	41.9	12.3	29.6

Table 8.36: The results of Mann-Whitney test between NEO different firms

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
NEO<30%	139			108			87		
NEO≥30%	255	-6.27	0.000	407	-6.73	0.000	568	-8.51	0.000

From the regression results presented in Table 8.37, over the three periods, the percentage of NEO is negatively related to BFA, the less the percentage of the BFA, the higher the percentage of NEO.

Table 8.37: The results of Regression between NEO different firms

	90-92			93-95			93-98		
Model1	Dependent=NEO30%			Dependent=NEO30%			Dependent=NEO30%		
	Coefficient	t	sig	Coefficient	t	sig	Coefficient	t	sig
constant	1.067	4.217	0.000	0.422	2.243	0.025	0.581	4.489	0.000
BFA	-0.009	-6.953	0.000	-0.006	-6.077	0.000	-0.007	-9.661	0.000
capln	-0.010	-1.098	0.273	0.020	2.464	0.014	0.020	3.006	0.003
R square	0.122			0.114			0.178		
Adj R^2	0.117			0.110			0.176		
F-statistics	26.779			32.261			70.009		

8.4.2 The largest three Institutional shareholders and Board Structure

(1) The largest three institutional investors and duality

1n the 1990-1992 periods, there is no difference between two groups, see Table 8.38 and Table 8.39, in the 1993-1995 periods; firms with separation have higher percentage of the largest three institutional investors, the results are significant using Mann-Whitney test see Table 8.38.

Table 8.38: BFA difference between duality and separation

	Big 3 Institutional shareholders		
	Dual	Separation	Differnce
1990	22.9	23.3	-0.3
1991	26.4	22.8	3.6
1992	22.6	23.8	-1.3
1993	21.4	21.9	-0.5
1994	20.0	23.1	-3.2
1995	22.6	22.8	-0.2
1996	23.3	22.9	0.4
1998	25.4	24.1	1.3
1999	22.5	24.5	-1.9
2000	22.3	23.8	-1.4

Table 8.39: The results of Mann-Whitney test between duality and separation

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
Dual	169			167			97		
Separation	278	-0.62	0.53	472	-2.36	0.018	459	-0.04	0.965

(2) The largest three institutional investors and Percentage of NEO

Both 1990-1992 periods and 1993-1995 periods show the difference in the largest three institutional investors, see Table 8.40 and Table 8.41. During the two periods, firms with more than 30% NEO have larger percentage of big 3 institutional shareholders. There are two possible explanation that for this. Firstly, the institutions invest their money in companies that have advanced corporate governance systems. Secondly the institutional investors intervene to force the companies to adopt more outside executive directors.

Table 8.40: The largest three institutional difference between NEO different firms

	Big 3 Institutional shareholders		
	NEO<30%	NEO>=30%	Differnce
1990	21.5	24.1	-2.7
1991	20.1	25.6	-5.5
1992	20.3	25.0	-4.7
1993	19.0	23.0	-4.0
1994	20.8	22.7	-1.9
1995	23.5	22.7	0.8
1996	25.7	22.5	3.2
1998	21.6	24.7	-3.2
1999	22.5	24.4	-1.9
2000	18.3	24.1	-5.8

Table 8.41: The results of Mann-Whitney test between NEO different firms

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
NEO<30%	161			146			76		
NEO≥30%	282	-3.08	0.002	478	-2.18	0.029	477	-0.51	0.610

8.4.3 The Largest Institutional shareholders and Board Structure

The data show that only during the period 1993-1995 the largest institutional shareholders differ: firms with separation have higher percentage of largest institutional shareholders than those with duality, see Table 8.42. This is supported by the Mann-Whitney Test see Table 8.43.

Table 8.42: The largest institutional investor difference between duality & separation

	Big one Institutional shareholders		
	Dual	Separation	Difference
1990	16.5	14.4	2.1
1991	18.3	13.4	4.9
1992	12.4	12.8	-0.3
1993	11.4	11.1	0.4
1994	10.5	12.7	-2.2
1995	14.2	12.1	2.1
1996	12.7	12.2	0.5
1998	12.7	12.8	0.0
1999	12.1	12.9	-0.8
2000	12.0	13.1	-1.1

Table 8.43: The results of Mann-Whitney test between duality and separation

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
Dual	169			167			97		
Separation	278	-0.73	0.466	472	-2.92	0.004	459	-0.45	0.649

(2) Largest and Percentage of NEO

Both 1990-1992 periods and 1993-1995 periods shows that firms with more than 30% NEO has higher percentage of big 1 shareholders, see Table 8.44, the result are seen to be significant in Table 8.45. As previously mentioned the reason may be either that institutional investors invest in such companies or alternative they encourage companies they have invested in move in this direction.

Table 8.44: The largest investor difference between NEO different firms

	Big one Institutional shareholders		
	NEO<30%	NEO>=30%	Difference
1990	15.1	15.5	-0.4
1991	11.9	16.1	-4.2
1992	10.8	13.6	-2.8
1993	9.5	12.0	-2.5
1994	11.5	12.3	-0.8
1995	13.6	12.4	1.2
1996	14.3	12.0	2.4
1998	10.9	13.0	-2.1
1999	11.5	12.9	-1.4
2000	10.1	13.3	-3.2

Table 8.45: The results of Mann-Whitney test between NEO different firms

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
NEO<30%	161			146			76		
NEO≥30%	282	-2.08	0.037	478	-2.73	0.006	477	-0.67	0.502

8.5 Boards changes and Performance

8.5.1. Board changes and Performance: Error bar analysis

(1) Duality and net income

Figure 8.14 shows the difference in net income between dual firms and separation firms in three periods. The average incomes, deflated by previous year total assets, are declining over the 1990s. The graph also shows that separation firms show less average net income than dual firms except in 1990-1992.

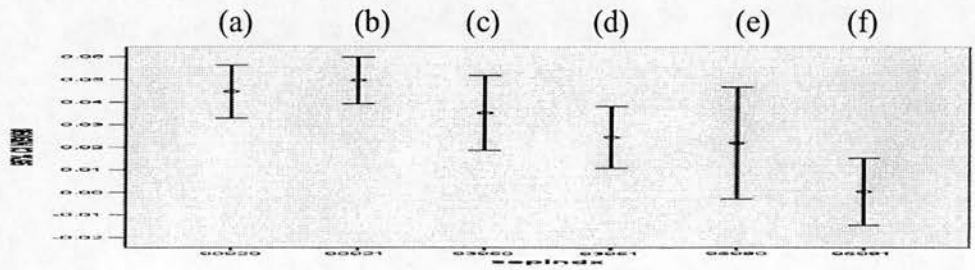


Figure 8.14: Net Income for Dual and Separation over time, 1990-2 Dual (a) & Separation (b), 1993-5 Dual (c) & Separation (d), 1996-8 Dual (e) & Separation (f).

(2) Duality and Tobin's Q

Figure 8.15 shows the difference in Tobin's Q between dual firms and separation firms in three periods. Contrary to previous analysis, which used deflated net income the figure shows the increase in Tobin's Q over the time, the slightly higher mean for the Separated companies and higher variability for Dual companies

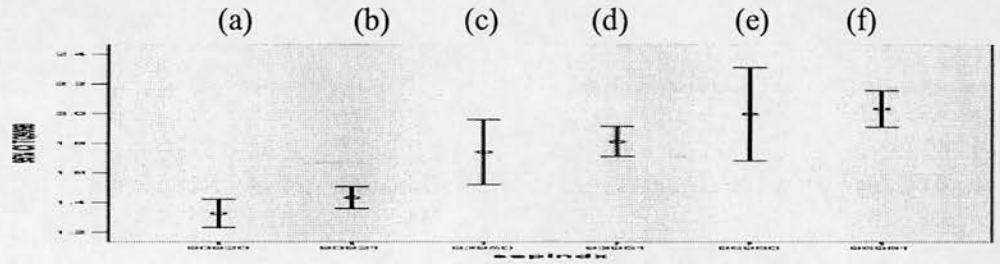


Figure 8.15: Tobin's Q for Dual and Separation over time, 1990-2 Dual (a) & Separation (b), 1993-5 Dual (c) & Separation (d), 1996-8 Dual (e) & Separation (f).

(3) Percentage of NEO and net income

Similar to the picture for duality the analysis for percentage of NEO has similar decrease in the net income over the period. Figure 8.16 shows the difference in net income based on percentage of non-executive directors. The graph indicates that firms with more than 30% non-executive have a slightly lower net income than firm with less than 30% non-executive. Again those with lower percentage of NEO have a higher variance.

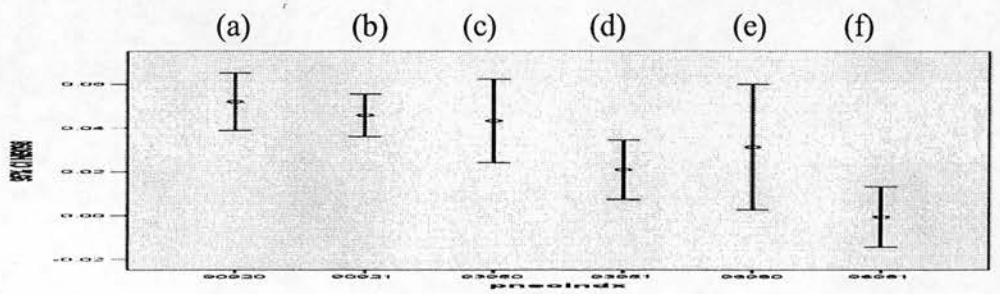


Figure 8.16: Percentage of NEO and net income. 1990- 2 Less than 30% NEO (a) & More than 30% NEO (b), 1993-5 Less than 30% NEO (c) & More than 30% NEO (d), 1996-8 Less than 30% NEO (e) & More than 30% NEO (f),

(4) Percentage of NEO and Tobin's Q

Again the plot of the mean and confidence intervals over years are similar to the previous plot for Tobin's Q, see Figure 8.17. The figure shows the difference in Tobin's Q based on percentage of non-executive directors. The pattern also shows increasing Tobin's Q. The firms with more than 30% outside-directors shows higher average Tobin's Q compared to firms with less than 30% non-executive directors.

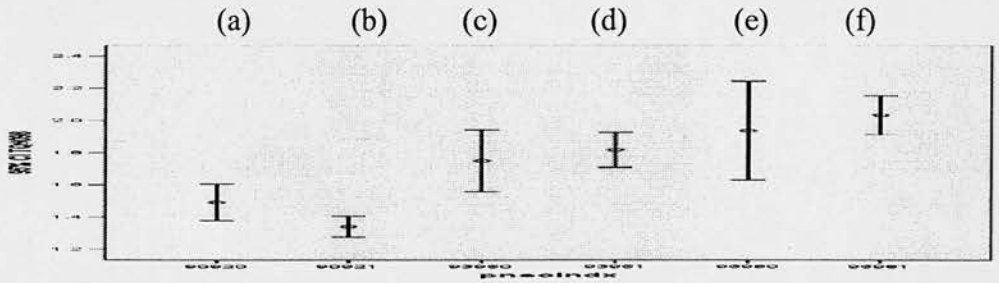


Figure 8.17: Percentage of NEO and Tobin's Q, 1990- 2 Less than 30% NEO (a) & More than 30% NEO (b), 1993-5 Less than 30% NEO (c) & More than 30% NEO (d), 1996-8 Less than 30% NEO (e) & More than 30% NEO (f),

8.5.2 Board changes and Performance: Regression analysis

In model 1, the explanatory variables are separation, firms with more than 30 % non-executive directors (NEO30P), size (Capln), and current ratio (CLCA). In model 2, instead of dummy variable (NEO30P), percentage of non-executive director (PNEO) is used.

(1) CG and NI

In Table 8.46 and 8.47, the dependent variable is deflated net income. The F-value for each model is significant at the 5% level. The explanatory power of each model is between 8% and 11%.

In model 1, the association between separation and deflated net income shows different relationships over the timescale. In pre-Cadbury, the sign is insignificant, but post Cadbury, especially during the period 1993-1998, the association of

separation to deflated net income shows a negative sign, see Table 8.46. The NEO30P, which indicate firms with more than 30 %, shows negative signs throughout the 1990s. Model 2 shows similar pattern as model 1 see Table 8.47.

Table 8.46: Regression of NI on board changes in model 1

	90-92			93-95			96-98			93-98		
Model1	Dependent=NI			Dependent=NI			Dependent=NI			Dependent=NI		
	Coeff	t	sig	Coeff	t	sig	Coeff	t	sig	Coeff	t	sig
Sep	0.00	0.08	0.93	-0.01	-1.05	0.30	-0.05	-2.46	0.01	-0.03	-2.34	0.02
NEO30p	-0.03	-3.54	0.00	-0.05	-4.42	0.00	-0.08	-3.62	0.00	-0.06	-4.93	0.00
capln	0.01	6.51	0.00	0.02	6.10	0.00	0.03	8.47	0.00	0.02	10.03	0.00
clca	-0.03	-3.54	0.00	0.04	2.62	0.01	0.05	2.67	0.00	0.06	5.40	0.00
constant	-0.16	-4.46	0.00	-0.30	-5.41	0.00	-0.56	-7.71	0.00	-0.40	-9.39	0.00
R square	0.11			0.08			0.10			0.10		
Adj R^2	0.11			0.08			0.10			0.09		
F-stat	12.75			13.35			21.82			37.67		

Table 8.47: Regression of NI on board changes in model 2

	90-92			93-95			96-98			93-98		
Model1	Dependent=NI			Dependent=NI			Dependent=NI			Dependent=NI		
	Coeff	t	sig	Coeff	t	sig	Coeff	t	sig	Coeff	t	sig
Sep	0.00	0.28	0.78	-0.01	-1.01	0.31	-0.05	-2.58	0.01	-0.03	-2.37	0.02
PNEO	-0.06	-2.76	0.01	-0.11	-3.22	0.00	-0.23	-4.29	0.00	-0.15	-5.04	0.00
capln	0.01	6.70	0.00	0.02	6.11	0.00	0.03	8.50	0.00	0.02	10.05	0.00
clca	-0.03	-3.61	0.00	0.03	2.32	0.02	0.05	2.46	0.01	0.06	5.04	0.00
constant	-0.16	-4.40	0.00	-0.29	-5.18	0.00	-0.52	-7.09	0.00	-0.38	-8.84	0.00
R square	0.11			0.08			0.11			0.10		
Adj R^2	0.10			0.08			0.11			0.10		
F-stat	13.68			12.99			23.28			37.67		

(2) CG and Tobin's Q

In Tables 8.48 and 8.49, the dependent variable is Tobin's Q. The F-value for each model is significant at the 5% level. The explanatory power of each model is between 11% and 18%. Table 8.48 shows the results there is not a significant relation between Tobin's Q and Corporate governance changes. Only in the pre-Cadbury period does there appear to be a negative association between Tobin's Q and NEO30P in model 1 and PNEO in model 2. These relationships are identified in Figures 8.16 and 8.18. Whilst the pattern of performance is improving over the period the confidence intervals are still overlapping, indicating the lack of significant in regression analysis.

Table 8.48: Regression of Tobin's Q on board changes in model 1

	90-92			93-95			96-98			93-98		
Model1	Dependent=Tobin's Q			Dependent=Tobin's Q			Dependent=Tobin's Q			Dependent=Tobin's Q		
	Coeff	t	sig	Coeff	t	sig	Coeff	t	sig	Coeff	t	sig
Sep	0.11	1.80	0.07	-0.01	-0.05	0.96	0.13	0.57	0.57	-0.03	-0.29	0.77
NEO30p	-0.27	-4.59	0.00	0.01	0.09	0.93	0.08	0.33	0.74	0.05	0.50	0.62
capln	0.13	8.79	0.00	0.13	4.89	0.00	0.19	0.03	0.00	0.16	7.90	0.00
clca	-0.06	-0.96	0.34	-0.92	-7.60	0.00	-1.81	-7.88	0.00	-1.16	-11.39	0.00
constant	-0.83	-3.13	0.00	0.17	0.38	0.71	-0.18	-0.23	0.82	-0.26	-0.69	0.49
R squa	0.18			0.11			0.09			0.12		
Adj R^2	0.17			0.11			0.09			0.12		
F-stat	23.45			18.83			19.45			45.30		

Table 8.49: Regression of Tobin's Q on board changes in model 2

	90-92			93-95			96-98			93-98		
Model1	Dependent=Tonin's Q			Dependent=Tonin's Q			Dependent=Tonin's Q			Dependent=Tonin's Q		
	Coeff	t	sig	Coeff	t	sig	Coeff	t	sig	Coeff	t	sig
Sep	0.12	1.93	0.05	0.00	0.03	0.98	0.08	0.35	0.72	-0.03	-0.32	0.75
PNEO	-0.74	-4.53	0.00	-0.12	-0.41	0.68	1.21	2.05	0.04	0.18	0.72	0.47
capln	0.13	8.89	0.00	0.13	4.97	0.00	0.18	3.94	0.00	0.16	7.90	0.00
clca	-0.07	-1.08	0.28	-0.92	-7.62	0.00	-1.81	-7.91	0.00	-1.16	-11.37	0.00
constant	-0.80	-2.98	0.00	0.18	0.39	0.70	-0.41	-0.50	0.62	-0.28	-0.76	0.45
R square	0.18			0.11			0.10			0.12		
Adj R^2	0.17			0.11			0.09			0.12		
F-stat	23.28			18.87			20.58			45.38		

8.6 Boards changes and Firm Risks

8.6.1 Board changes and Firm Risks: Error bar analysis

(1) Duality and Z-Score

Altman's Z-Score is a measure of financial strength, the higher Z the lower probabilities of bankruptcy and the lower score the higher risk. Table 8.50 provides the average Z-score for both firms with duality and firms with separation. Firms with duality show an increasing Z-Score, indicating decreasing default risk, but firms with separation show decreasing Z-score, which indicate increasing default risk. Figure 8.18 shows the Z-scores, one can see that there is considerable variance associated to 1996-8 period for dual companies. This may be partially due to sample size.

Table 8.50: Average Z-score between duality and separation

	90-92	93-95	96-98
Duality	2.980	3.202	3.841
Separation	2.921	2.926	2.368

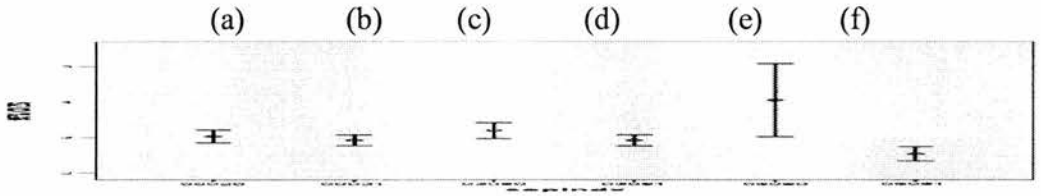


Figure 8.18: Z-score for Dual and Separation over time, 1990-2 Dual (a) & Separation (b), 1993-5 Dual (c) & Separation (d), 1996-8 Dual (e) & Separation (f).

(2) Duality and Firm specific risk

Table 8.51 shows increasing pattern of firm risk see also Figure 8.19. Both firms with duality and firms with separation indicate the increasing firm specific risk unlike for the Z-score. The firms with separation are not more risky than dual firms.

Table 8.51: Average Firm specific risk between duality and separation

	90-92	93-95	96-98
Duality	33.649	35.810	43.592
Separation	31.908	35.489	38.177

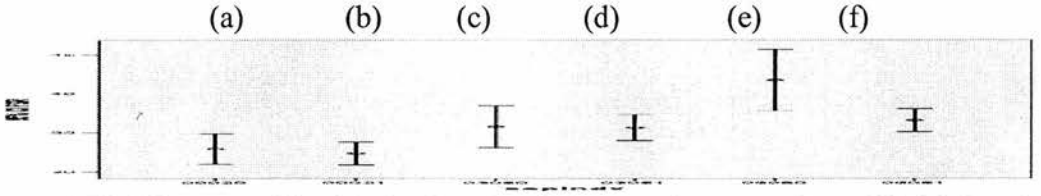


Figure 8.19: Firm specific risk for Dual and Separation over time, 1990-2 Dual (a) & Separation (b), 1993-5 Dual (c) & Separation (d), 1996-8 Dual (e) & Separation (f).

(3) Outside director and Z-Score

Table 8.52 shows two patterns of Z-score between firms with more than 30 % non-executive directors and other firms. Firms with more than 30% non-executive director shows higher risk than firms with lower percentage of non-executive director according to the Z-score. Figure 8.20 provides illustration of the results.

Table 8.52: Average Z-score between PNEO different firms

	90-92	93-95	96-98
PNEO(< 0.3)	3.098	3.538	3.683
PNEO(≥ 0.3)	2.858	2.847	2.645

* Z-score data from OSIRIS

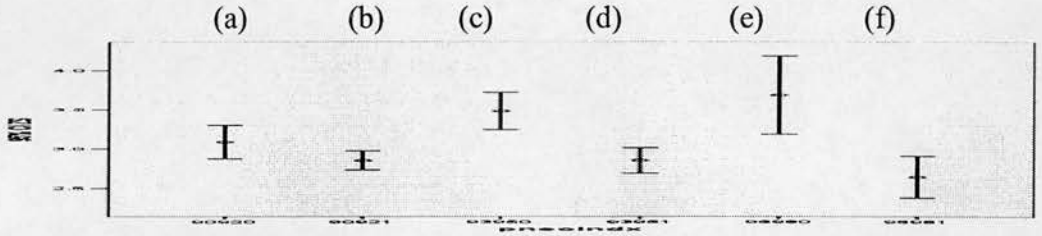


Figure 8.20: Average Z-score between PNEO different firms, 1990- 2 Less than 30% NEO (a) & More than 30% NEO (b), 1993-5 Less than 30% NEO (c) & More than 30% NEO (d), 1996-8 Less than 30% NEO (e) & More than 30% NEO (f),

(4) Outside director and Firm Specific risk

Table 8.53 shows the increasing pattern of firm risk, but the difference is not significant, see also Figure 8.21.

Table 8.53: Average Firm specific risk between PNEO different firms

	90-92	93-95	96-98
PNEO(< 0.3)	34.124	35.603	40.602
PNEO(≥ 0.3)	31.843	35.585	37.069

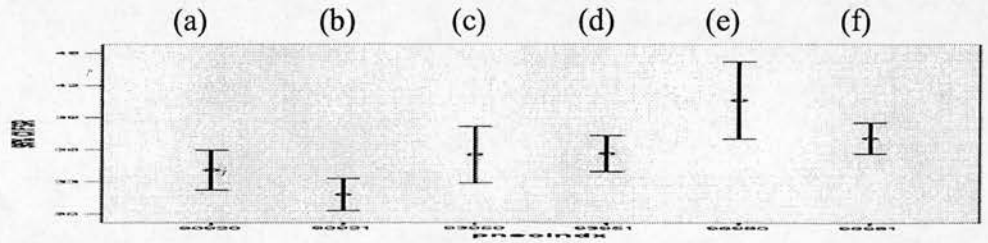


Figure 8.21 Firm specific risk between PNEO different firms, 1990- 2 Less than 30% NEO (a) & More than 30% NEO (b), 1993-5 Less than 30% NEO (c) & More than 30% NEO (d), 1996-8 Less than 30% NEO (e) & More than 30% NEO (f),

8.6.2. Board changes and Firm Risks: Mann-Whitey Test

(1) Duality and Z-Score

Mann-Whitey Test is significant only in the 96-98 periods for difference in Z-score risk, see Table 8.54. Firms with duality are healthier than firms with separation in the 1996-1998 in terms of Z-score.

Table 8.54: Mann-Whitey Test between duality and separation with Zscore

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
Dual	142			145			124		
Separation	250	-0.18	0.856	397	-1.79	0.073	573	-4.43	0.000

(2) Duality and Firm specific risk

The test shows no differences between firms for the periods of 1992-1995 and 1993-1995, but for the periods of 1996-1998, sees Table 8.55. Firms with separation are less risky than dual firms. This is the opposite result to the Z-score analysis.

Table 8.55: Mann-Whitey Test between duality and separation with Firm specific risk

	1992-1995			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
Dual	164			161			140		
Separation	308	-1.76	0.079	465	-1.61	0.108	648	-3.13	0.002

(3) Outside director and Z-Score

The Mann Whitney test in Table 8.56 shows there are risk difference between firms with more than 30% non-executive firms and other firms. Firms with more than 30% non-executive director shows higher risk than firms with less than 30% NEO

Table 8.56: Mann-Whitey Test between NEO different firms with Z-score

	1990-1992			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
NEO<30%	152			136			104		
NEO>=30%	223	-3.35	0.001	401	-6.12	0.000	634	-5.80	0.000

(4) Outside director and Firm Specific risk

Table 8.57 shows no difference in firm specific risk over the periods.

Table 8.57: Mann-Whitey Test between NEO different firms with Firm specific risk

	1992-1995			1993-1995			1996-1998		
	n	z	sig	n	z	sig	n	z	sig
NEO<30%	175			160			121		
NEO>=30%	277	-1.56	0.118	459	-1.58	0.113	718	-1.80	0.07

8.7 Ownership, Performance and Firm Risk

8.7.1 Ownership and performance

(1) Board ownership and Net Income

There is no significant relationship between board ownership and net income during the periods of 93-95 and 96-98, but in the periods of 1990-1992, there is positive relationship, see Table 8.58

Table 8.58: Regression of NI on BFA in model 1

	90-92			93-95			96-98		
Model1	Dependent=NI			Dependent=NI			Dependent=NI		
	Coefficient	t	sig	Coefficient	t	sig	Coefficient	t	sig
BFA	0:001	3.721	0.00	0.0004	1.34	0.18	0.001	1.15	0.25
capln	0.030	7.77	0.00	0.020	5.09	0.00	0.020	5.28	0.00
CLCA	-0.080	-4.64	0.00	0.020	1.40	0.16	0.003	0.13	0.89
constant	-0.402	-6.17	0.00	-0.263	-4.62	0.00	-0.346	-4.86	0.00
R square	0.192			0.058			0.045		
Adj R^2	0.185			0.052			0.041		
F	26.109			9.933			9.641		

(2) BFA and Tobin's Q

There are positive relationship between Tobin's Q and Board ownership. Over the three periods, the regression results show that the relation is strong, see Table 8.59.

Table 8.59: Regression of Tobin's Q on BFA in model 1

	90-92			93-95			96-98		
Model1	Dependent=TQ			Dependent=TQ			Dependent=TQ		
	Coefficient	t	sig	Coefficient	t	sig	Coefficient	t	sig
BFA	0.006	3.65	0.00	0.010	4.14	0.00	0.02	4.41	0.00
capln	0.170	9.63	0.00	0.179	6.76	0.00	0.292	8.34	0.00
CLCA	-0.427	-4.98	0.00	-0.729	-5.78	0.00	-1.253	-6.82	0.00
constant	-1.462	-4.34	0.00	-1.212	-2.40	0.02	-2.727	-4.10	0.00
R square	0.256			0.133			0.152		
Adj R^2	0.250			0.127			0.148		
F	37.795			24.761			36.463		

8.7.2 Ownership and Firm Risks

(1) Board ownership and Z-score

The regression results show that Board ownership has a positive relationship with Z-score in the 96-98 periods. This means the larger the board ownership, the higher the Z-score and therefore the firm has less risk, see Table 8.60.

Table 8.60: Regression of Z-Score on BFA

	90-92			93-95			96-98		
Model2	Dependent=Z score			Dependent=Z score			Dependent=Z score		
	Coefficient	t	sig	Coefficient	t	sig	Coefficient	t	sig
BFA	0.006	1.80	0.07	0.006	1.79	0.07	0.010	2.38	0.02
capln	-0.030	-0.92	0.36	-0.030	-0.98	0.33	0.090	2.07	0.04
constant	3.349	5.06	0.00	3.385	5.69	0.00	0.971	1.20	0.23
R square	0.024			0.014			0.013		
Adj R^2	0.017			0.010			0.010		

(2) Board ownership and Firm Specific Risk

When using the measure firm specific risk, the result is significant only in 93-95 periods, see Table 8.61. The larger the board ownership, the less the risk is.

Table 8.61: Regression of Firm Specific Risk on board ownership

	90-92			93-95			96-98		
Model2	Dependent=FSR			Dependent=FSR			Dependent=FSR		
	Coefficient	t	sig	Coefficient	t	sig	Coefficient	t	sig
BFA	-0.030	-1.11	0.27	-0.123	-3.20	0.00	0.020	0.57	0.57
capln	-4.562	-14.78	0.00	-5.992	-16.20	0.00	-5.139	-15.95	0.00
constant	114.293	19.81	0.00	146.619	20.87	0.00	130.144	21.40	0.00
R square	0.386			0.340			0.311		
Adj R^2	0.383			0.338			0.309		

(3) BFA and TL/TA

The following regression, Table 8.62, shows the relationship between Board ownership and total liability. The results are significant over the test periods. The larger the BFA, the less are the total liability.

Table 8.62: Regression of TL/TA on BFA

	90-92			93-95			93-98		
Model2	Dependent=TL/TA			Dependent=TL/TA			Dependent=TL/TA		
	Coefficient	t	sig	Coefficient	t	sig	Coefficient	t	sig
BFA	-0.002	-3.55	0.00	-0.001	-2.96	0.00	-0.002	-3.02	0.00
capln	0.001	0.12	0.91	0.008	2.01	0.05	0.009	1.80	0.07
constant	0.558	6.21	0.00	0.396	4.97	0.00	0.410	4.36	0.00
R square	0.045			0.039			0.030		
Adj R^2	0.039			0.035			0.027		

8.8 Reporting Quality and Conservatism in UK

8.8.1 Earning and Liability Pattern in Sample Companies

(1) UK Earning Pattern

The annual growth rates of GDP show that 1990-1991 was a recessionary period, see Figure 3.2. Yet over the 1990s, there is a stable growth rate in GDP. Figure 8.22 shows decreasing patterns of average net income and EBIT when deflated by total assets. This is the result of increasing number of firms with negative income. In terms of earnings, the firm risks increased over the period. This may be due to an increasing adoption of conservative accounting practices, where the increasing reporting of negative earnings does not present a correct view of firm risk.

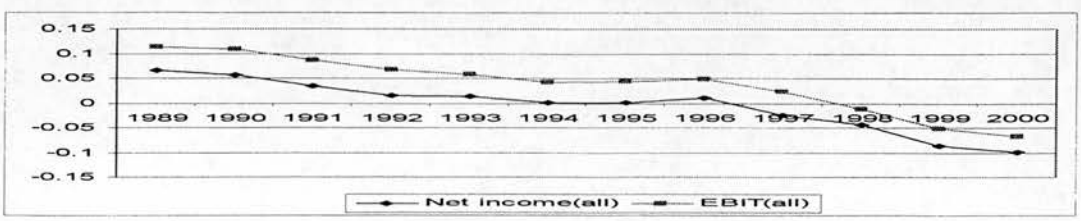


Figure 8.22: Average NI and EBIT

In Table 8-63, the percentage of negative net income has increased from 3 percents in 1985 to 47 percents in listed firms. For the de-listed firms the percentages of negative income, also, have been increasing over the sample periods, but at a greater rate.

Table 8.63: Frequency of Loss in Sample companies

	Earnings			
	List firms		Delisted firms	
	Number	% Neg	Number	% Neg
1985	30	0.03	20	0
1986	40	0.07	26	0
1987	53	0.04	36	0.06
1988	65	0.05	44	0.09
1989	75	0.08	56	0.05
1990	80	0.14	62	0.10
1991	84	0.25	65	0.22
1992	87	0.15	68	0.26
1993	91	0.14	75	0.20
1994	101	0.17	84	0.26
1995	121	0.17	96	0.26
1996	140	0.23	112	0.20
1997	151	0.25	119	0.26
1998	164	0.32	121	0.44
1999	173	0.30	111	0.59
2000	190	0.34	82	0.70
SD		0.149		0.259

Notes: a) Deflated earnings is Net Income deflated by prior period Total Assets.

(2) Liability pattern

Figure 8.23 shows the time series pattern of total liabilities and current liabilities, actual figures given in Table 8.64. Both liabilities maintain constant level based on deflated assets. Even the liability levels show decreasing patterns after 1995. In terms of debt, the risk seems not increasing over the time.

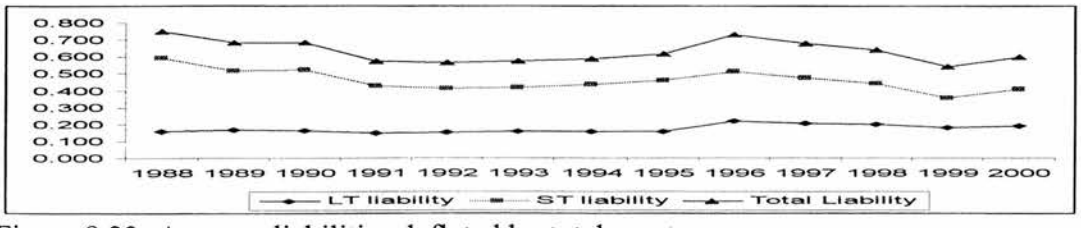


Figure 8.23: Average liabilities deflated by total assets

Table 8.64: Liability deflated by total assets

	90	91	92	93	94	95	96	97	98	99	00
LT	0.16	0.15	0.15	0.16	0.15	0.16	0.22	0.21	0.20	0.18	0.19
ST	0.52	0.43	0.41	0.42	0.43	0.46	0.51	0.47	0.44	0.36	0.41
Total	0.68	0.57	0.56	0.57	0.59	0.61	0.73	0.68	0.64	0.54	0.60

8.8.2 Reporting Quality in UK

(1) Discretionary Accrual by pooling method

Average discretionary accruals in each year

Figures 8.24, 8.25 and 8.26 show the average discretionary accruals in each year. The calculation processes are in the Appendix 2.1. When applied to all data, there are some discernible patterns in the sample periods: Before the 1992, there is negative average discretionary accrual, during the periods of 1992-1994, it is zero, and there is peak in 1996 and fall after that year. When compared the average discretionary accruals between listed firms and delisted firms, there is slight difference in discretionary accruals. The listed companies show less discretionary accruals than delisted companies before the 1994, see Figure 8.25 and Figure 8.26.

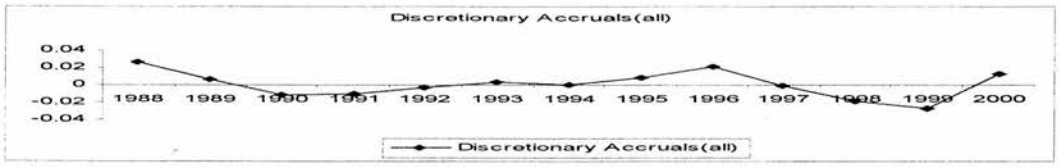


Figure 8.24: The average discretionary accruals with all company

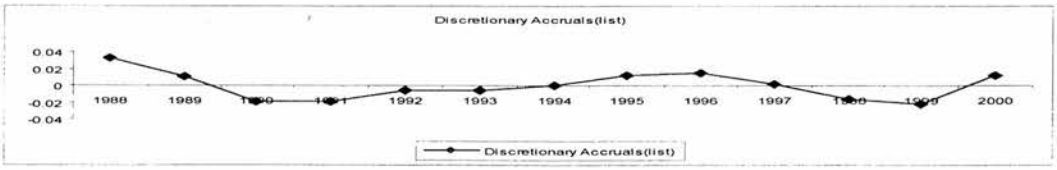


Figure 8.25: The average discretionary accruals with listed company

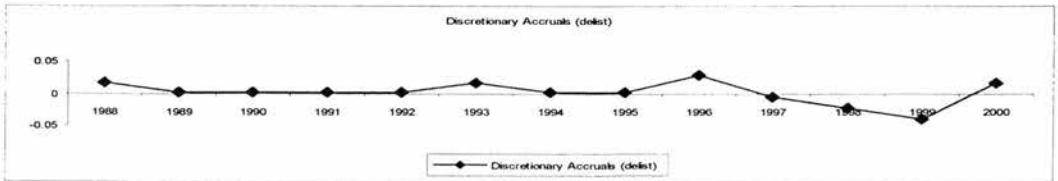


Figure 8.26: The average discretionary accruals with delisted company

Cumulative discretionary accruals by Pooling Analysis

Figure 8.27, 8.28 and 8.29 shows the cumulative discretionary accruals. Figure 8.27 shows low discretionary accruals during the period of the 1992-1994 and after 1998. The low discretionary in Figure 8.28 are from the listed companies.

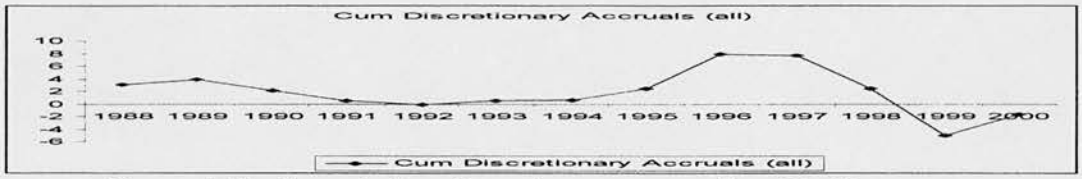


Figure 8.27: Cumulative discretionary accruals with all company

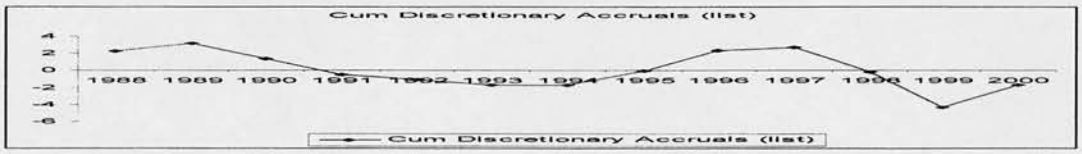


Figure 8.28: Cumulative discretionary accruals with listed company

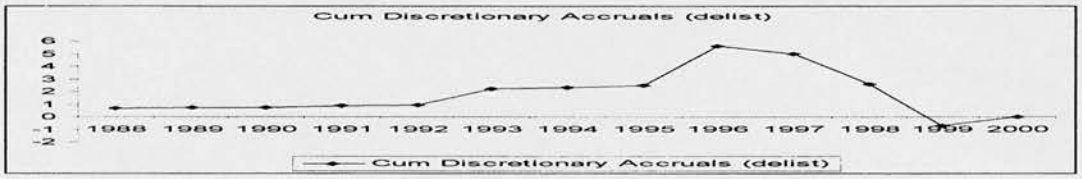


Figure 8.29: Cumulative discretionary accruals with delisted company

(2) Discretionary Accrual by Cross-section analysis

Average discretionary accruals

The listed firms show lower discretionary accruals over the period of 1989-1993, see Figure 8.30, 8.31, and 8.32. Also the pattern moves around zero discretionary accruals. The calculation processes are in Appendix 2.2.

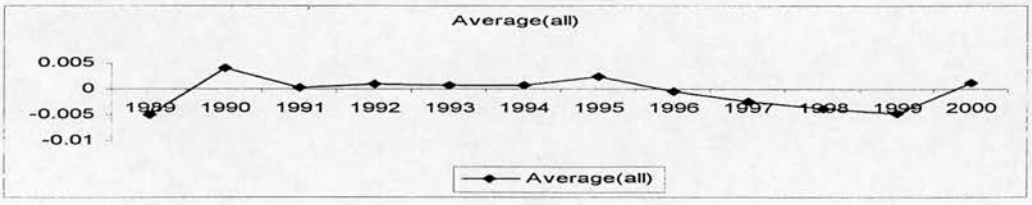


Figure 8.30: Average discretionary accruals with all company

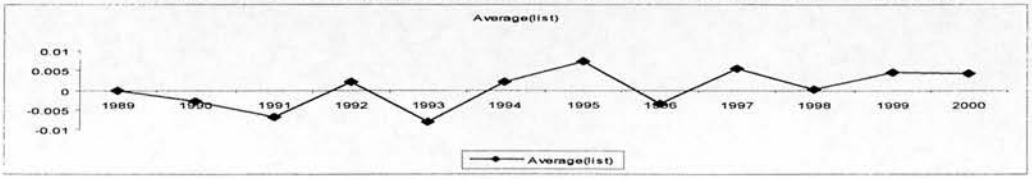


Figure 8.31: Average discretionary accruals with list company

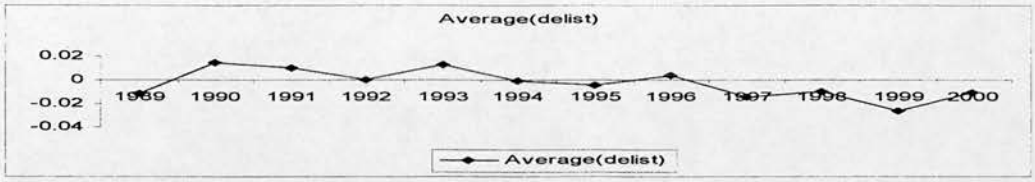


Figure 8.32: Average discretionary accruals with delist company

Cumulative discretionary accruals

When accumulated the discretionary accruals, the listed comapies show lower discretionary accruals over the periods of 1991-1994, see Figure 8.33, 8,34 and 8.35

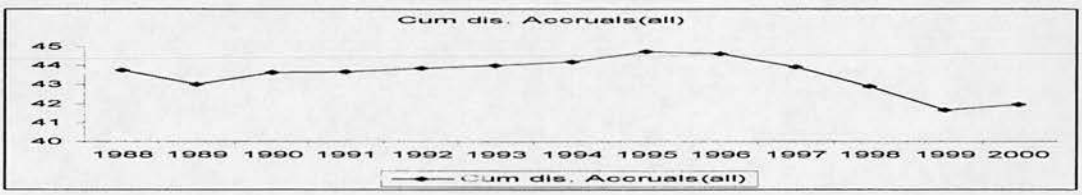


Figure 8.33: Cumulative discretionary accruals with all company

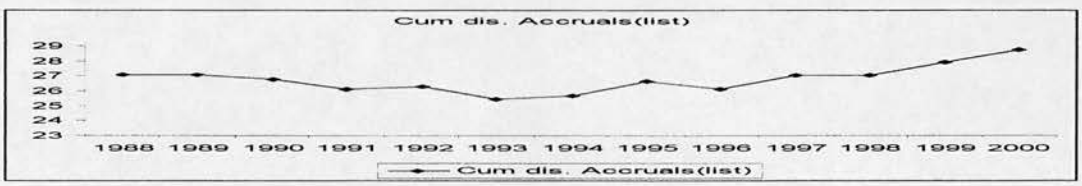


Figure 8.34: Cumulative discretionary accruals with list company

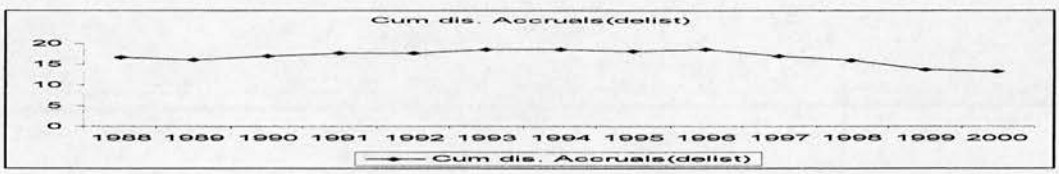


Figure 8.35: Cumulative discretionary accruals with delist company

8.8.3 Earning conservatism in UK

To measure earning conservatism, cumulative non-operating accruals, regression of earnings on returns and book to market ratio are used.

(1) Cumulative non-operating accruals (CNNOA): All Samples

For the analysis of the negative cumulative non-operating accruals, the study used two models and the results are presented in three parts: all sample, listed firm sample and de-listed firm sample. Here the all sample model is displayed. The listed and delisted firm samples are given in appendix 3.

Model 1, in Figure 8.36 shows the negative cumulative non-operating accruals (CNNOA) in the periods of 1988 – 1997 in this graph. The CNNOA expanded 90-96 periods and decreased after 1997.

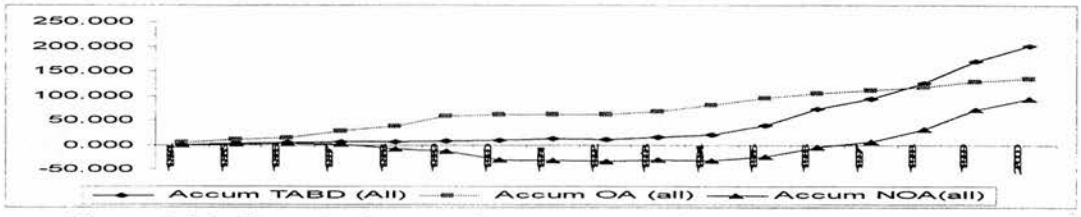


Figure 8.36: Cumulative negative non-operating accruals with model 1

Model 2 in Figure 8.37, there seems no sign of the negative cumulative non-operating accruals. The difference is due to the calculation of the working capital accruals. Model 1 used operational accruals to calculate non-operational accruals following Givoly and Hayn (2000), but model 2 used working capital accruals. The results indicate the difference based on models.

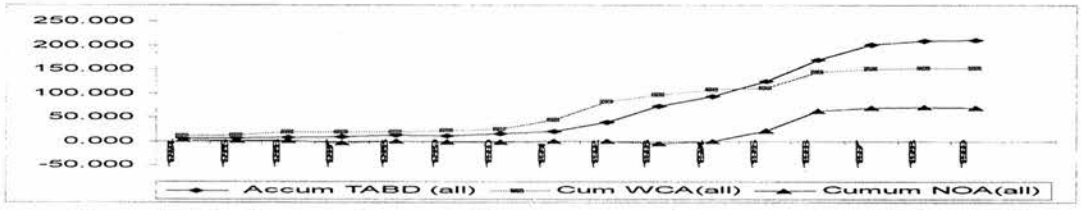


Figure 8.37: Cumulative negative non-operating accruals with Model 2.

The difference between Operating accruals and Working capital accruals is presented in Figure 8.38.

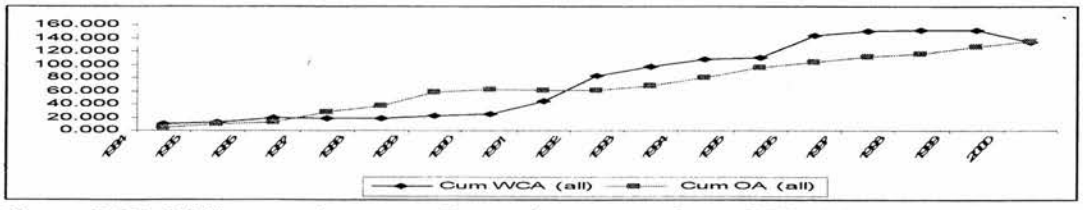


Figure 8.38: Difference between Operating accruals and Working capital accruals

(2) Cross-sectional regression of earnings on returns

Table 8.65 shows that the net income is more sensitive to bad news than good news over the sample period. This result indicates that there exists conservatism during the

1990s. Basu (1997) states that stock price lead accounting earning because stock price reflect information other than current earnings. With conservative account practices loss is recognised more timely. The result is that earnings are expected to be more strongly associated with negative unexpected return, as a proxy for bad news.

Table 8.65: Cross-sectional regression of earnings on returns

Period	Good news				Bad news				
	N	Ad R^2	α	β_1	N	Ad R^2	α	β_1	β(BN)- β GN)
90-92	165	0.026	0.070	-0.030	125	0.065	0.080	0.239	0.269
			(7.211)	(-2.307)			(3.128)	(3.101)	
93-95	171	-0.005	0.030	0.020	154	0.038	0.050	0.100	0.080
			(1.513)	(0.337)			(5.199)	(2.009)	
96-98	229	0.030	0.060	-0.070	189	0.08	0.090	0.483	0.553
			(4.252)	(-2.853)			(2.207)	(4.162)	
99-01	189	0.021	0.137	-0.610	336	0.054	0.192	0.804	1.414
			(0.708)	(-2.254)			(2.544)	(4.466)	

* t-statistics in parenthesis

(3) Book to Market ratio

Lower book to market indicates higher conservatism. Figure 8.39 shows that there is relatively strong conservatism in the period 1993-1997. Figure 8.40, which removed 1 percent extreme data, shows the same results.

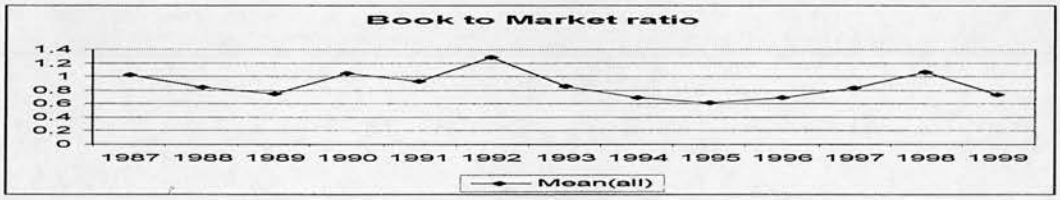


Figure 8.39: Mean of Book to Market, *BTM_{it} = the book to market ratio for firms i at t, calculated by book value of common equity divided by market value of equity.

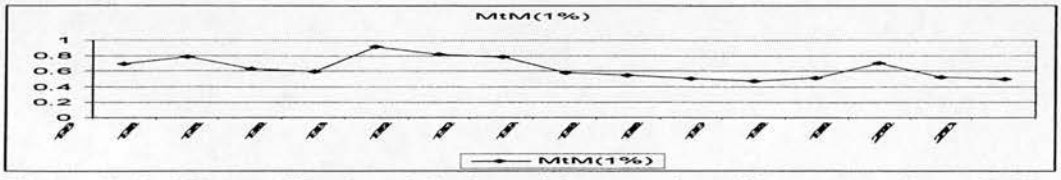


Figure 8.40: Mean of Book to Market with removing 1% extreme data, *MV from Worldscope DB.

There is mean difference between 1990-1992 period and 1993-1995, see Table 8.66. The period of 1993-1995 shows strongest level of conservatism.

Table 8.66: Mann Whitney test of BTM between two periods

	Pre & Post Cadbury			After Cadbury Period			
	n	z	sig		n	z	sig
1990-1992	631			1993-1995	743		
1993-1995	743	-2.235	0.025	1996-1998	944	-0.43	0.668

(4) More on negative earning and conservatism

Figure 8.22 and Table 8.63 shows increasing number of firms with negative income. There may bring about confusion between negative income and accounting conservatism. Negative income is the results of the poor operation, while conservatism is care selection of accounting practices.

The measures of the conservatism, in this thesis, based on established methods by Basu (1997) and Givoly and Hayn (2000). Basu (1997) measures conservative accounting using the income –return response. The method is based on theory that conservative accounting recognizes bad news in a timely manner than good news. Also Givoly and Hayn (2000) provide a very useful tool to measure conservatism: negative non-operating accruals. Companies with conservative accounting increase the cumulative negative non-operating accruals. The measures of the conservatism are used by Beekes et al (2004), Lara, et al. (2005), LaFond (2005) with UK data. Therefore the thesis confirms the previous studies and methods.

8.9 Board and Conservatism

8.9.1 Regression of earnings on returns under bad news

In this section the aims to address the relationship between earnings on returns and the changes induced by the codes in the context of bad news. Again the measures of the changes are the duality and separation and percentage of NEO. The work parallels that of Basu (1997) and Beekes et al. (2004) who explored the issue through their beta model. They assumed that those firms, which separate the roles will show stronger earnings on return that should be indicated by β_1.

(1) Duality and Conservatism

Under the bad news, the firms with separation show stronger association of earning on return than the firms with duality see Table 8.67. For the period 1990-1998, the βs of separation firm are greater than those of duality firms.

Table 8.67: Regression of earnings on returns between duality and separation

Period	Duality				Separation				
	N	Ad R^2	α	β_1	N	Ad R^2	α	β_2	β_2- β_1
90-92	51	0.075	0.050	0.128	64	0.084	0.100	0.381	0.253
			2.603	2.254			2.219	2.601	
93-95	30	0.014	0.040	0.080	113	0.072	0.070	0.126	0.046
			2.545	1.192			5.874	3.117	
96-98	26	-0.021	0.050	0.178	135	0.081	0.090	0.530	0.352
			0.545	0.697			1.775	3.579	
99-01	48	0.053	0.209	0.729	235	0.028	0.141	0.542	-0.187
			1.293	1.907			1.760	2.761	

(2) NEO30P and Conservatism

Also firms with more than 30 percent NEO have a stronger association than the firms with less than 30 percent NEO during the period of 93-98 see Table 8.68. This indicates that firms with more than 30% NEO operate more conservative reporting.

Table 8.68: Regression of earnings on returns between NEO different firms

Period	PNEO <30%				PNEO >=30%				
	N	Ad Rs	α	β_1	N	Ad R^2	α	β_2	β_2- β_1
90-92	44	0.139	0.120	0.332	66	0.034	0.040	0.190	-0.142
			3.076	2.822			1.095	1.820	
93-95	28	-0.03	0.050	0.040	117	0.084	0.060	0.134	0.094
			2.498	0.518			6.036	3.417	
96-98	32	0.225	0.169	0.477	145	0.069	0.080	0.510	0.033
			3.065	3.166			1.468	3.419	
99-01	31	-0.005	0.372	0.763	251	0.041	0.136	0.574	-0.189
			1.083	0.923			1.984	3.415	

8.9.2 Board changes and BTM

In relation between duality and separation, firms with separation have lower BTM ratio through the three periods. Also in the relation between percentage of NEO and BTM, firms with higher percentage of NEO has lower BTM ratio, indicating higher conservatism.

(1) Duality and Conservatism

During the period of 1993-1995 and1996-1998, the average BTM is lower with separation see Figure 8.41. The Mann Whitney test shows only the period of 96-98 has significant difference between dual firms and separation firms. Details are given in Table 8.69.

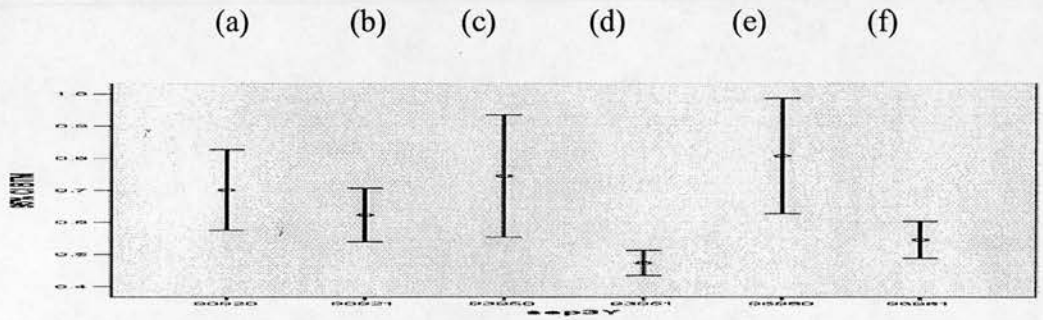


Figure 8.41: Duality and Conservatism with BTM, 1990-2 Dual (a) & Separation (b), 1993-5 Dual (c) & Separation (d), 1996-8 Dual (e) & Separation (f).

Table 8.69: Mann Whitney test between duality and Separation

	1990-1992 BTM			1993-1995 BTM			1996-1998 BTM		
	n	z	sig	n	z	sig	n	z	sig
Dual	218			165			146		
Separation	357	-0.052	0.958	493	-1.97	0.048	665	-3.08	0.002

(2) NEO30P and Conservatism

Error bar analysis, Figure 8.42, shows that during the period of 1993-1995 and1996-1998, the average BTM is lower with more than 30% NEO firms. The Mann Whitney test given in Table 8.70 is significant only for the 96-98 period.

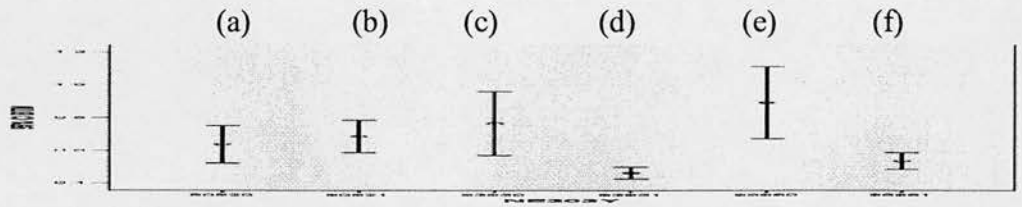


Figure 8.42: NEO30P and Conservatism with BTM, 1990- 2 Less than 30% NEO (a) & More than 30% NEO (b), 1993-5 Less than 30% NEO (c) & More than 30% NEO (d), 1996-8 Less than 30% NEO (e) & More than 30% NEO (f),

Table 8.70: Mann Whitney test between NEO different firms

	1990-1992 BTM			1993-1995 BTM			1996-1998 BTM		
	n	z	sig	n	z	sig	n	z	sig
NEO<30%	217			164			130		
NEO>=30%	342	-1.706	0.088	487	-1.49	0.14	734	-2.29	0.022

8.10 Ownership and Conservatism

8.10.1 Cross-sectional regression of earnings on returns

(1) Sensitivity under Good and Bad News

During the period of 1990-1992, all firms show conservative reporting patterns regardless of board ownership, see Table 8.71. During the period of 1993-1995, only the firms with less than 5% board ownership show conservative reporting signs, see Table 8.72. Then during the period of 1996-1998, all firms with BFA show conservative signs see Table 8.73.

Table 8.71: Sensitivity under Good and Bad News in Year 1990 -1992

BFA%	Good news				Bad news				
	N	Ad R^2	α	β_1	N	Ad R^2	α	β_1	β(BN)- β GN)
BFA < 5%	60	0.138	0.090	-0.060	32	0.018	0.020	0.283	0.343
			7.747	-3.236			0.271	1.249	
5≤BFA<25	31	0.002	0.030	0.100	25	0.024	0.128	0.215	0.115
			0.978	1.030			2.175	1.260	
BFA ≥25	26	-0.024	0.004	0.030	22	0.125	0.080	0.184	0.154
			0.108	0.635			2.504	2.000	

Table 8.72: Sensitivity under Good and Bad News in Year 1993 -1995

BFA%	Good news				Bad news				
	N	Ad R^2	α	β_1	N	Ad R^2	α	β_1	β(BN)- β GN)
BFA < 5%	69	0.015	0.080	-0.050	87	0.003	0.050	0.060	0.110
			6.544	-1.417			4.128	1.117	
5≤BFA<25	30	-0.028	-0.010	0.050	18	0.071	0.040	-0.111	-0.161
			-0.196	0.466			2.208	-1.517	
BFA ≥25	31	0.005	-0.070	0.399	11	-0.105	0.010	-0.040	-0.439
							0.217	-0.216	

Table 8.73: Sensitivity under Good and Bad News in Year 1996 -1998

BFA%	Good news				Bad news				
	N	Ad R^2	α	β_1	N	Ad R^2	α	β_1	β(BN)- β GN)
BFA < 5%	109	0.073	0.070	-0.100	68	0.061	0.070	0.308	0.408
			4.708	-3.074					
5≤BFA<25	38	0.279	0.114	-0.137	35	0.035	0.070	0.173	0.310
			5.741	-3.915			1.890	1.498	
BFA ≥25	32	-0.032	0.040	-0.010	31	0.027	0.211	0.810	0.820
			0.847	-0.190			0.893	1.349	

(2) Sensitivity under Bad News

Firms with less than 5 % board ownership are more conservative than firms with more than 5% during the all period except 96-98 periods, see Table 8.74. This is also true for the same more than 10% and 20% as presented in Table 8.75 and Table 8.76.

Table 8.74: BFA sensitivity under Bad News between BFA 5% and above

Period	BFA ≥ 5%				BFA <5%				
	N	Ad R^2	α	β_1	N	Ad R^2	α	β_2	β_2- β_1
90-92	47	0.06	0.10	0.20	32	0.02	0.02	0.28	0.09
			3.06	1.98			0.27	1.25	
93-95	29	-0.02	0.03	-0.06	87	0.00	0.05	0.06	0.12
			1.43	-0.63			4.13	1.12	
96-98	66	0.03	0.13	0.52	68	0.06	0.07	0.31	-0.21
			1.30	1.79			1.85	2.31	
99-01	51	0.05	0.09	0.26	64	0.00	0.02	0.29	0.03
			1.83	1.96			0.17	1.09	

Table 8.75: BFA sensitivity under Bad News between BFA 5% and BFA 10% Above

Period	BFA ≥ 10%				BFA <5%				
	N	Ad R^2	α	β_1	N	Ad R^2	α	β_2	β_2- β_1
90-92	0.13	0.10	0.19	32	0.02	0.02	0.28	0.10	0.09
		3.69	2.46			0.27	1.25		
93-95	-0.03	0.02	-0.08	87	0.00	0.05	0.06	0.14	0.12
		0.82	-0.66			4.13	1.12		
96-98	0.03	0.16	0.61	68	0.06	0.07	0.31	-0.30	-0.21
		1.05	1.48			1.85	2.31		
99-01	0.08	0.10	0.22	64	0.00	0.02	0.29	0.07	0.03
		2.63	2.17			0.17	1.09		

Table 8.76: BFA sensitivity under Bad News between BFA 5% and BFA 25% Above

Period	BFA ≥ 25%				BFA <5%				
	N	Ad R^2	α	β_1	N	Ad R^2	α	β_2	β_2- β_1
90-92		0.13	0.08	0.18	32	0.02	0.02	0.28	0.10
			2.50	2.00			0.27	1.25	
93-95	11	-0.11	0.01	-0.04	87	0.00	0.05	0.06	0.10
			0.22	-0.22			4.13	1.12	
96-98	31	0.03	0.21	0.81	68	0.06	0.07	0.31	-0.50
			0.89	1.35			1.85	2.31	
99-01	23	0.11	0.14	0.29	64	0.00	0.02	0.29	0.00
			.2.449	1.96			0.17	1.09	

8.10.2 BFA and BTM

Mann Whitney test confirms that firms with less than 5% board ownership are more conservative in reporting see Table 8.77.

Table 8.77: Mann Whitney test for BFA in three period

	1990-1992 BTM			1993-1995 BTM			1996-1998 BTM		
	n	z	sig	n	z	sig	n	z	sig
BTA≥ 5%	222			232			944		
BTA< 5%	185	-3.974	0.00	290	-3.07	0.002	670	-1.19	0.233

8.11 Impact of Conservative Data on Default models

8.11.1 Impact of conservative data on Altman model

Figure 8.43 shows the results of the probability of default in Altman model, details given in Table 8.78. The calculation processes are in Appendix 5. The graph shows the increasing risks during the period of 1990-1993 and the period of 1997-2000. In a more conservative data year, each model has turned down. This indicates the data influence the outcome of the models. With the turndown, the model looses its predictive power of classification. The reason is that a given level of negative earnings has a smaller effect on the probability of bankruptcy when the Altman model is built on more conservative data. Figure 8.44 and 8.45 shows the same results from the listed and delisted company samples.

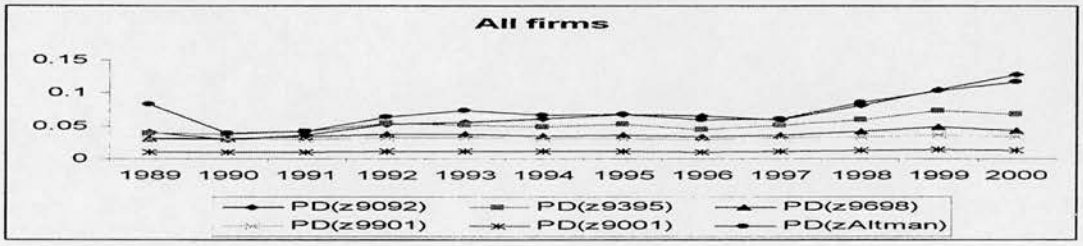


Figure 8.43: Probability of default in Altman Model with all firms

Table 8.78: Probability of default in Altman Model

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
PDzAltman	0.08	0.04	0.04	0.06	0.07	0.07	0.07	0.06	0.06	0.09	0.10	0.12
PD(z9092)	0.04	0.03	0.04	0.05	0.05	0.06	0.07	0.06	0.06	0.08	0.10	0.13
PD(z9395)	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.04	0.05	0.06	0.07	0.07
PD(z9698)	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.05	0.04
PD(z9901)	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.03
PD(z9001)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
PD(z9901)	0.03	0.03	0.03	0.03	0.03	0.04	0.03	0.03	0.03	0.06	0.06	0.04

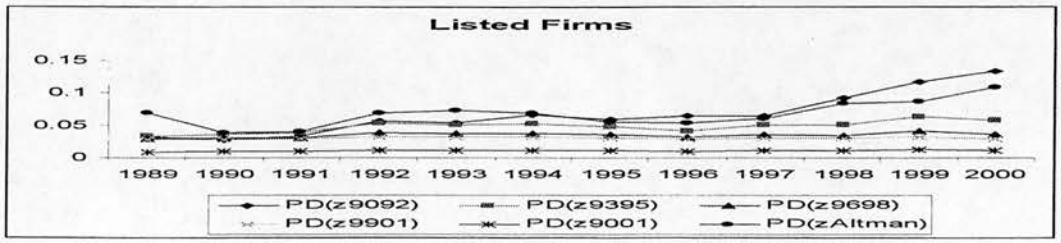


Figure 8.44: Probability of default in Altman Model with listed firms

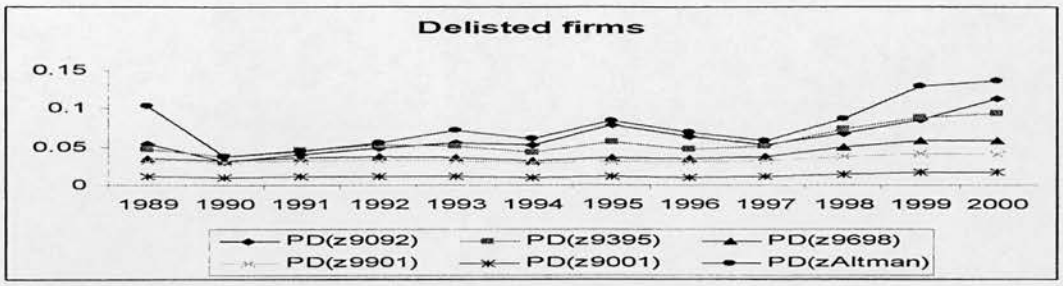


Figure 8.45: Probability of default in Altman Model with delisted firms

8.11.2. Impact of conservative data on Ohlson model

The Original Ohlson model also shows the increasing pattern of risk in the UK firms Figure 8.46, details given in Table 8.79. The calculation processes are in Appendix 6. The 9092 model, which used 90-92 data with 23 defaults, also shows an increasing pattern. The rest of the sample shows similar results as that of the Altman models. Figure 8.47 and 8.48 shows the samle results from the listed and delisted company samples.

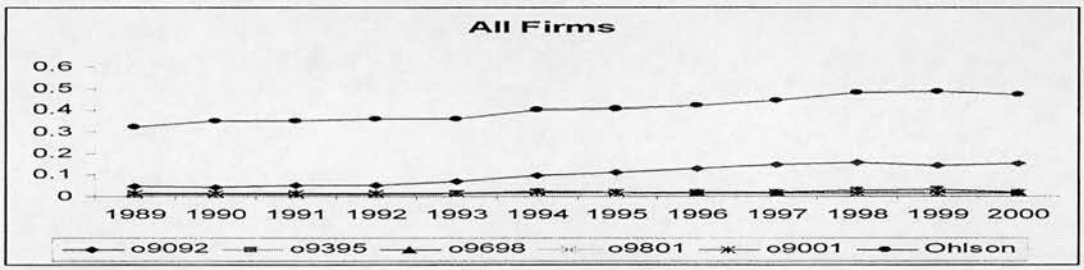


Figure 8.46: Probability of default in Ohlson Model with all firms

Table 8.79: Changes of Probability of Default in Ohlson models

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
PDOhlson	0.32	0.35	0.35	0.36	0.36	0.40	0.40	0.42	0.44	0.48	0.49	0.47
PD(o9092)	0.04	0.04	0.05	0.05	0.07	0.10	0.11	0.13	0.15	0.16	0.14	0.15
PD(o9395)	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.03	0.03	0.02
PD(o9698)	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.03	0.03	0.02
PD(o9801)	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.01
PD(o9001)	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01

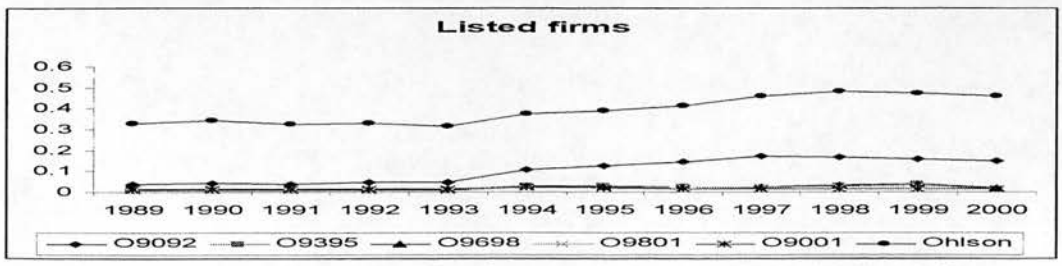


Figure 8.47: Probability of default in Ohlson Model with listed firms

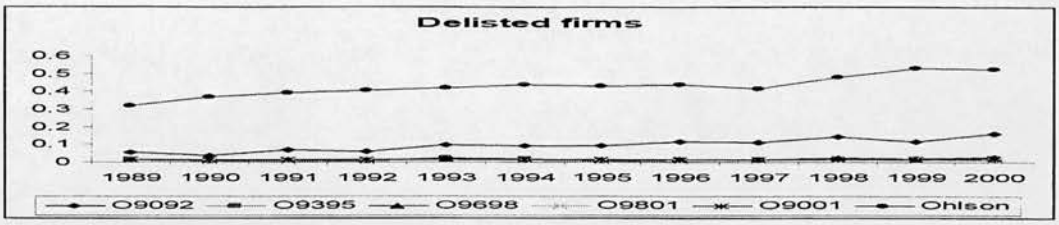


Figure 8.48: Probability of default in Ohlson Model with delisted firms

8.11.3 Option models as bench mark

(1) Model 1

Considering Merton's option based model, model 1 shows different trend in the default risk Figures 8.49, 8.50 and 8.51, details given in Table 8.80. The calculation processes are in Appendix 7. This is a more volatile graph, which appears to decrease from 1990 to 1994. From 1994 till 1997 it becomes more stable and at end of series becomes again more volatile with possible increase.

Table 8.80: Probability of Default with model 1

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Prob(u)All	0.43	0.24	0.34	0.14	0.21	0.18	0.16	0.19	0.33	0.22	0.29
Prob(u)list	0.46	0.28	0.36	0.16	0.25	0.23	0.17	0.22	0.36	0.23	0.29
Prob(u)delist	0.33	0.09	0.27	0.08	0.12	0.07	0.14	0.13	0.26	0.21	0.28

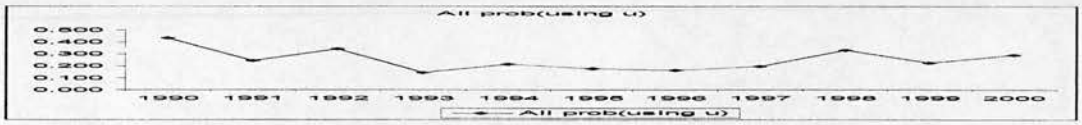


Figure 8.49: Probability of default in Merton model (1) with All firms

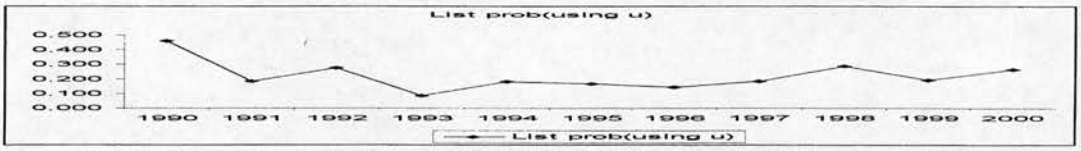


Figure 8.50: Probability of default in Merton model (1) with list firms

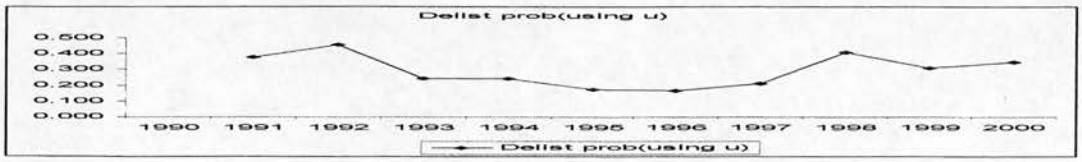


Figure 8.51: Probability of default in Merton model (1) with delisted firms

(2) Model 2

Merton's Model 2 has the same pattern with model 1 Figures 8.52, 8.53 and 8.54, details are given in Table 8.81.

Table 8.81: Probability of default with model 2

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Prob®All	0.43	0.32	0.37	0.23	0.24	0.21	0.21	0.22	0.34	0.28	0.31
Prob®list	0.46	0.36	0.40	0.25	0.28	0.27	0.23	0.25	0.38	0.29	0.32
Prob®delist	0.33	0.12	0.28	0.16	0.13	0.07	0.15	0.15	0.26	0.27	0.30

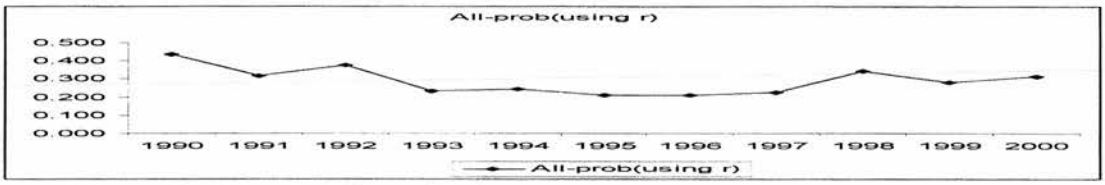


Figure 8.52: Probability of default in Merton model (2) with All firms

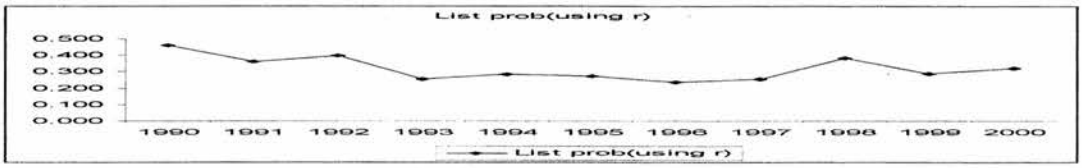


Figure 8.53: Probability of default in Merton model (2) with listed firms

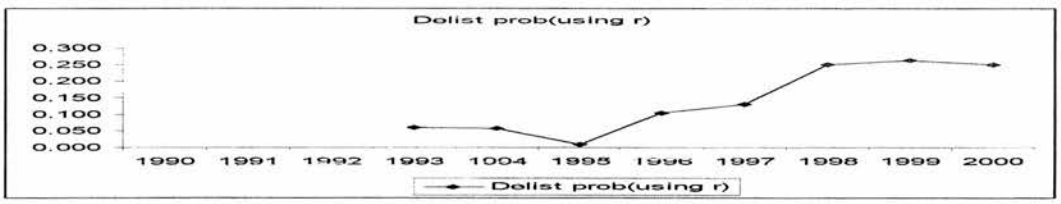


Figure 8.54: Probability of default in Merton model (2) with delisted firms

(3) Comparing Model 1 and Model 2

When comparing the two models in Figure 8.55 it appears that model 2 is always greater than model 1.

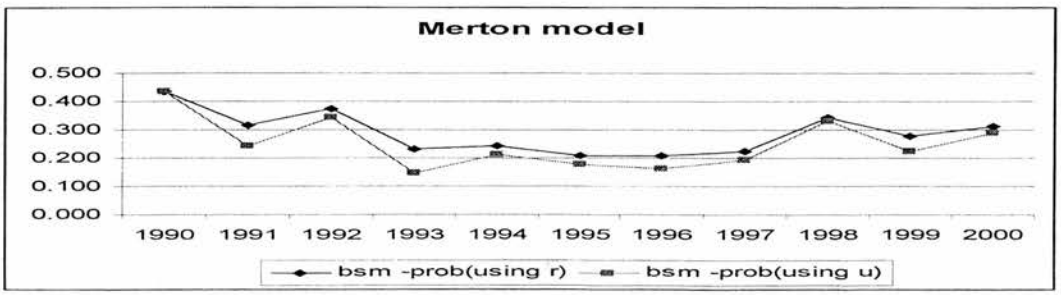


Figure 8.55: Comparing Merton model(1)and (2)

8.11.4. Impact of Conservative Data on each model

(1) Using original accounting models

Figure 8.56 compares three models: Altman model, Ohlson model and Merton models. Both Altman model and Ohlson model used the same coefficient values as those of the Altman (1968) and Ohlson (1984).

It is clear that the Altman model has the lowest default rate and is on gentle increase over the period. Merton model seem most volatile over the period starting initially above the Ohlson model then for the remaining period being below it. The Ohlson model has the highest default except at the beginning and like the Altman model is on a gentle rise over the period.

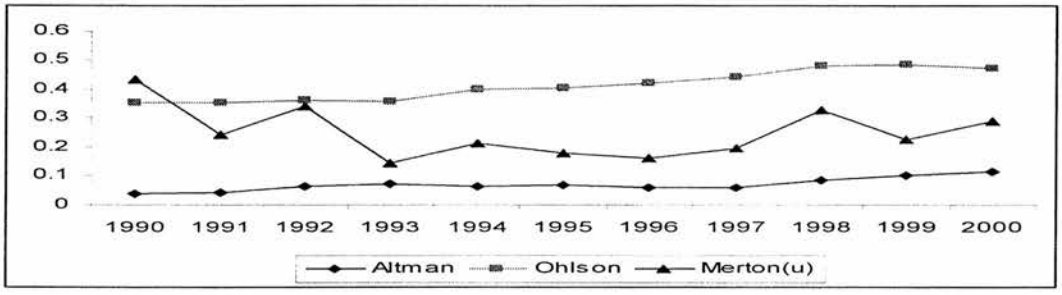


Figure 8.56: Comparing Altman model, Ohlson model and Merton model

(2) Using Rebuilding models

In this section the models are rebuilt using the variables suggested by Altman (1968) and Ohlson (1984). The coefficients are estimated using logistic regression based on current data. This is to allow for change due to the period of study.

Figures from 8.57 to 8.61 show the sensitivity to the conservative data. For the models, the 23 default companies are drawn and 5 period data are used. For example, the models in Figure 8.57, the Altman and Ohlson model are built by 1990-1992 data with the 23 default company data.

When the models are built by each period data, the Ohlson model drops dramatically to just above the Altman model compare Figure 8.56 with Figure 8.57. With more

conservative data period, the changes of the default probability are shown in Figure 8.58, 8.59, 8.60, and 8.61. As the data have contain more negative income data, the newly built Altman and Ohlson model has no distinction and lost the predictive power. The differences from previous curves show that re-estimation may be an important issue when using Altman and Ohlson model.

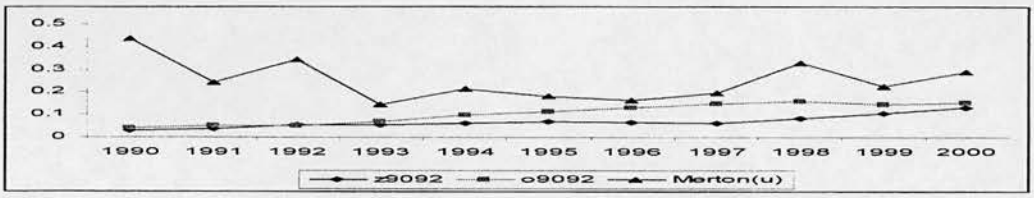


Figure 8.57: Rebuilding model with data 1990-1992

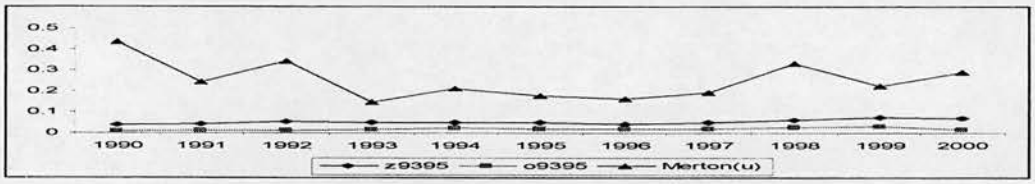


Figure 8.58: Rebuilding model with data 1993-1995

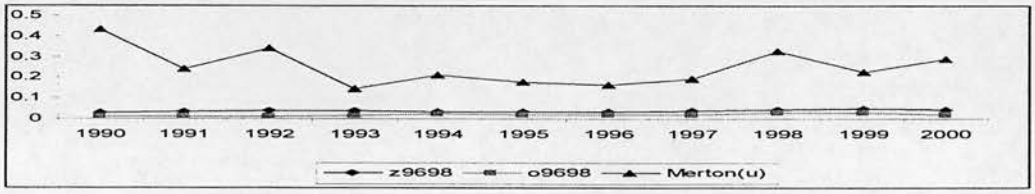


Figure 8.59: Rebuilding model with data 1996-1998

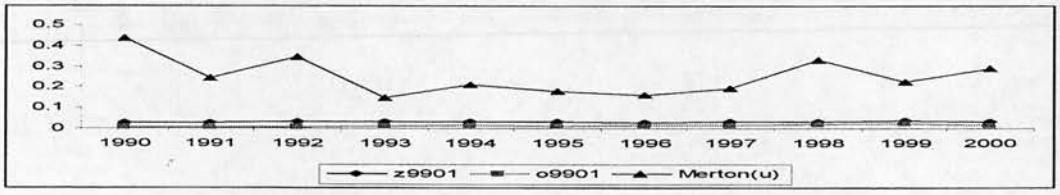


Figure 8.60: Rebuilding model with data 1999-2000

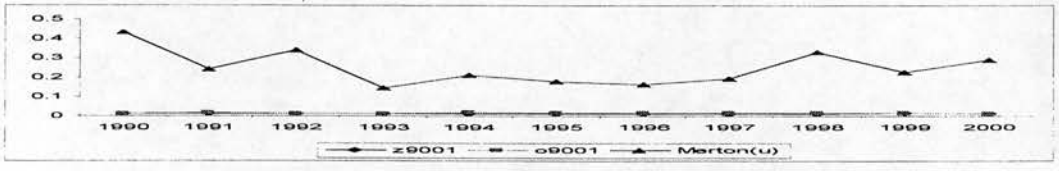


Figure 8.61: Rebuilding model with data 1990-2000

8.12 Conclusion

In this Chapter the results obtained from the empirical study have been presented. It has presented a broad sweep across areas of board changes, ownership and impact of conservatism. For the analysis of the board changes, separation of CEO and Chairman, the introduction of NEO, Board member tenure are analysed. The ownership studies contain board ownership and institutional ownership. In relation to performance and risk evaluation, income, Tobin's Q, Z-score and firm specific risk are analysed. To investigate the inconsistent results, reporting quality and conservatism are studied. Also how the board changes are related with conservatism is analysed. Then the impact of the conservatism on the risk models is studied. In the next Chapter these results will be discussed in more detail.

CHAPTER 9
CONCLUSION

9.0 Introduction

The objective of this study was to consider the impact of changes in Corporate Governance in UK on performance of companies and especially their risk management. The approach taken was empirical based on a sample of manufacturing companies. This chapter summarise findings from the research carried out. The study started with a review of the literature on Corporate Governance and its relationship to roles of the Board and Owners of the company. It explored the different theories and models for the relationship. Subsequently the work explored the definition of Risk and its measurement, to provide a basis for the empirical study. In the research it was found there was an ambiguity over measurement of risk with different measures implying different behaviours between the groups applying the recommendations and those not. It would appear that these differences could be accounted for by conservatism of accounting practices. Perhaps the main impact of the reports during the period of study is those that have adopted the recommendation have tended to take a more conservative approach. The Chapter will provide the summary of the work within the thesis. It will start with review of the literature highlighting the key insights. It will then explore the relationship between the Board/Ownership and performance/risk. It will look at the evidence for conservatism. Finally it will discuss the findings for the empirical study.

9.1 Key insights from existing works

This section will summarise the findings form the literature on corporate governance, risk and conservatism.

9.1.1 Many theories

Many theories abound for corporate governance and so researchers are faced with several options for the basis of study. It is, though, helpful to take on board the view

of Donaldson and Davis (1991), which suggest that one can select the appropriate theory for a specific use. They argue that the important thing is not the issue of superiority of one theory over another theory, but the validity of theory as an explanation for some phenomena. Similarly Daily, Dalton and Cannella (2003) argue that 'a multi-theoretic approach to corporate governance is essential for recognising the many mechanisms and structures that might reasonably enhance organizational functions'. Hence the basis of this research has been pragmatic in dealing with underlying theory. The main impetus has been towards empirical research.

9.1.2 The risk management aspect of corporate governance

The study has intended to explore the relationship between corporate governance and risk management. It is generally assumed within the UK that corporate governance has a major role in the management of risk. The issue in this study is whether the risk management can be controlled through regulation in the form of codes applied to corporate governance. The UK tradition of corporate governance is through self-regulation, with the trend to codification being distinctly recent phenomena.

9.1.3 Ownership, board and performance

There are two different views on endogenety of managerial ownership structures. Demsetz and Lehn (1985) argue that ownership structures are endogenously determined while Morck et al. (1988) report the ownership structure as exogenous. The study on relationship between managerial ownership and performance reports that the relationship is certainly non-monotonic. Each previous study reveals a different relationship in percentage terms between ownership and performance.

The growth of institutional ownership has lead to an increased institutional role in the governance of companies. There is also a social demand for their participant in the corporate governance.

9.1.4 Risk models and risk studies

Risk is an ambiguous term with many potential definitions. Hence many authors have suggested a variety of measures to assess risk. Two broad categories are accounting

and market based approaches. Each measure has its limitation. The accounting data can be regarded as historic whilst market data can be regarded as future expectations of market. In this work both are considered.

9.1.5 Linking board change, risk management and conservatism

The change in the codes that develop in the 1990s had an impact on the composition of the Board. Hence this study has explored the changes that have taken place at Board level to see if that has effected the management of risk. Another change that has occurred is the more conservative approach to accounting. It can be argued that these three issues are highly related in that they are trying to achieve the same goals.

The changes in the Board are to ensure greater monitoring role and hence the ability of the Board to actively manage and so reduce risk. Risk management within a company should be focused on reducing the cost of bankruptcy, reducing tax, facilitating optimal investment, improving decision making and capital budgeting, and develop risk reducing management. Conservatism within accounting aims to reducing the cost of contracting, reducing shareholder litigation, avoiding regulations intervention, and reducing taxes.

9.2 Research Findings

9.2.1 Finding (1): Changes of Board and Tenure

(1) Board changes

The results show that the Cadbury report had an impact on board composition. The separation of chairman and CEO was apparent after 1992. In 1990, 59 % of the firms separated the chairman and CEO. In the end of the 2000, the table shows that 83% of all firms split the position of CEO and Chairman.

Also the percentage of the NEO has increased to 50 percent by the end of the 1999, but there are some differences between industries. The average board size has not changed much during the 1990s, but the average number of non-executive directors has increased from 2.4 to 3.6. Firms with more than 3 non-executive directors were only 45% in 1990, but 72% firms have more than 3 non-executive directors by 2000. Technical oriented industries, such as SIC 36 to SIC 38 show lower rate of separation. Also there are 10-20 percent of the companies which did not follow the Cadbury Report's recommendations.

(2) Tenure changes

After Cadbury Report, the accelerated separation of chairman and CEO brought in new CEO and Chairman to the companies. New financial directors are appointed both 1990-1992 periods and 1998-2000 periods, again possibly reflecting changes in CEOs and Chairmen.

(3) Implication

The tenure results show that Cadbury Report had impact on the appointment of new board members: chairman, CEO and financial director. The analysis shows, though, it is possible that financial director may move up to CEO or Chairman. These results may indicate, contrary to the desire of the Cadbury Committee, that increased independence has not been achieved and so the greater monitoring has not been the outcome.

9.2.2 Findings (2): Changes of Ownership

(1) Board Ownership

For the board ownership, the patterns indicate that the share of the directors and their relatives were decreasing: while the board ownerships amount to 19.7 per cent in 1990, they decrease to 13.8 percent in 1998.

(2) Institutional Ownership

For the largest 3 institutional ownership, all the firms show very similar average ownership over the 1990s, which has 22-23 percentages of shares of the companies being owned by 3 institutions. The average holding, though, of the largest institutional investor has declined over the 1990s: 15.3 percent of the each firm in 1990 to 12.9 in 2000. The decrease was especially notable after 1992-1993 periods.

(3) Implication

The 10-20 percent of the companies which did not follow the Cadbury Report's recommendation may be explained by the structure of the board ownership. The trade off pattern between board ownership and duality are shown to be the higher the board ownership is, the less separation of the chairman and CEO.

9.2.3 Findings (3): Board structure and Tenure

(1) Impact of duality on tenure

The tenure of chairman and CEO is related to duality. Firms with duality show longer tenure for Chairman and CEO. This pattern was significant for both 1990-1992 and 1993-1995. In the 1993-1995, the firms with no duality also show longer tenure of financial director. For the rest of the period the results were not significant statistically, see Table 9.1

Table 9.1: Impact of duality on tenure

	1990-1992	1993- 1995	1996-1998
Chairman	Dual > No dual	Dual > No dual	
CEO	Dual > No dual	Dual > No dual	Dual > No dual
FD		Dual < No dual	

(2) Impact of Percentage NEO on tenure

The tenure of Chairman and CEO is related to percentage of NEO. Firms with less than 30% NEO in board have longer tenure for chairman and CEO. In the 1990-1992,

the firms with more than 30% NEO have longer tenure for financial directors, see Table 9.2.

Table 9.2: Impact of Percentage NEO on tenure

	1990-1992	1993- 1995	1996-1998
Chairman	NEO30less > NEO30more	NEO30less > NEO30more	
CEO	NEO30less > NEO30more		
FD	NEO30less < NEO30more		

(3) Board ownership and tenure

Board ownership is positively related to chairman tenure and CEO tenure during both 1993-1995 periods and 1996-1998 periods. This indicates possibly that ownership structure decides the CEO and chairman tenure, see Table 9.3

Table 9.3: Board ownership and tenure

	1990-1992	1993- 1995	1996-1998
BFA-Chairman tenure	n/a	positive	positive
BFA-CEO tenure	n/a	positive	positive
BFA-FD tenure	n/a	n/a	n/a

(4) Implication

Firms with duality, firms less than 30% NEO and firms with higher board ownership show longer tenure of the CEO and Chairman. This fact indicates that board are controlled by the ownership.

9.2.4 Findings (4): Ownership and Board structure

(1) Board ownership and board structure

Firms with duality show larger percentage board ownership in the 1993-1995 and 1996-1997. Also firms with less than 30% NEO have larger percentage of BFA shareholders, see Table 9.4.

Table 9.4: Board ownership and board structure, Mann-Whitney test

1990-1992	1993- 1995	1996-1998
	Dual > No dual	Dual > No dual
NEO30less > NEO30more	NEO30less > NEO30more	NEO30less > NEO30more

The regression results are the same as that of Mann-Whitney test. Separation is related to BFA in the 93-95 periods and 93-98 periods. Over the three periods, the percentage of NEO is related to BFA, see Table 9.5.

Table 9.5: Board ownership and board structure, regression

	1990-1992	1993- 1995	1996-1998
BFA-separation	n/a	negative	negative
BFA-NEO30%	negative	negative	negative

(2) Institutional ownership and board structure

Firms with separation of chairman and CEO have larger percentage of the largest 3 institutional shareholders in 1993-1995 periods. This pattern is the same with big 1 shareholders, see Table 9.6

Table 9.6: Institutional Ownership and duality

	1990-1992	1993- 1995	1996-1998
Big 3		Dual < No dual	
Big 1		Dual < No dual	

Firms with more than 30 NEO has larger percentage of big 3 shareholders in 1990-1992 and 1993-1995. This pattern is the same for big 1 shareholders in the 1993-1995 periods, see Table 9.7.

Table 9.7: Institutional Ownership and NEO

	1990-1992	1993- 1995	1996-1998
Big 3	NEO30less < NEO30more	NEO30less < NEO30more	
Big 1		NEO30less < NEO30more	

(3) Implication

Before Cadbury Report, there had been majority institutional ownership in the UK. The institutional shareholders own the majority of the shares of quoted companies (Cadbury Report, paragraph 6.9). The analysis confirms that the institutional investor may influence the board structure or they invest their fund in well governed companies.

9.2.5 Findings (5): Boards changes and Performance

(1) Duality and performance by Error bar analysis

The error bar graph shows that firms with separation show less average net income than firms with duality, but measured with Tobin's Q, the results are different. The firms with separation show no sign of less Tobin's Q than firms with duality.

(2) Percentage of NEO and performance by Error bar analysis

The error bar graph shows that firms with more than 30% NEO are lower net income than firm with less than 30% NEO, but the results are different when measured with Tobin's Q. The firms with more than 30% NEO show higher average Tobin's Q than firms with less than 30% NEO.

(3) Separation and performance by regression analysis

The results of regression analysis show that there are negative relationship between net income and separation. Firms with separation show negative net income during the periods of 1996-1998 and 1993-1998. There is not a significant relation between Tobin's Q and corporate governance changes except 1990-1992 periods see Table 9.8

Table 9.8: Separation and performance by regression analysis

	Model	1990-1992	1993- 1995	1996-1998	1993-1998
Net income	1			negative	negative
	2			negative	negative
Tobin Q	1				
	2	positive			

(4) Percentage of NEO and performance Q by regression analysis

The percentage of NEO also shows negative relationship with net income. In case of Tobin's Q, there is negative relation with percentage of NEO before 1992, but during the 1996-1998 periods, the relation becomes positive, see Table 9.9.

Table 9.9: Percentage of NEO and performance Q by regression analysis

	Model	1990-1992	1993- 1995	1996-1998	1993-1998
Net income	1	negative	negative	negative	negative
	2	negative	negative	negative	negative
Tobin Q	1	negative			
	2	negative		positive	

(5) Implication

The relation between board changes and performance shows a distinct pattern. When measured with net income, the firms with separation and firms with more than 30% NEO seems have lower performance, but the results are different when measured with Tobin's Q. These results are consistent with previous results. Weir and Laing (2000)'s study confirm that firms with separation do not perform better than firms with duality. Firms with at least three non-executive directors have negative relation in 1992 (statistically not significant), negative and significant in 1995. These results are contrary to expected results. The Cadbury and other report expect better performance with the adoption of the Code recommendation.

9.2.6 Findings (6): Boards changes and Firm Risks

(1) Duality and Risk

The results show those firms with separation are more risky firm in terms of Z-score, but the risk is measured with firm specific risk, the results are different, see Table 9.10. Mann-Whitey Test is significant only in the 96-98 periods both Z-score risk and Firm specific risk, see Table 9.11.

Table 9.10: Duality and Risk, Error bar graph

	90-92	93-95	96-98
Z-score risk	Dual < Non-dual	Dual < Non-dual	Dual < Non-dual
Firm specific risk	Dual > Non-dual	Dual > Non-dual	Dual > Non-dual

Table 9.11: Duality and Risk, Mann-Whitey Test

	90-92	93-95	96-98
Z-score risk			significant
Firm specific risk			significant

(2) Percentage of NEO and Risk

The results show those firms more than 30 % NEO are more risky firms in terms of Z-score, but measured with firm specific risk, the results are reverse, see Table 9.12. Mann-Whitey Test is significant only for Z-score risk over the test periods, see Table 9.13.

Table 9.12: Percentage of NEO and Risk, Error bar graph

	90-92	93-95	96-98
Z-score risk	NEO30less < NEO30more	NEO30less < NEO30more	NEO30less < NEO30more
Firm specific risk	NEO30less > NEO30more	NEO30less > NEO30more	NEO30less > NEO30more

Table 9.13: Percentage of NEO and Risk, Mann-Whitey Test

	90-92	93-95	96-98
Z-score risk	significant	significant	significant
Firm specific risk			

(5) Implication

The results of firms risk evaluation also show similar results of that of performance study. When measure Z-score, the firm with duality and with less than 30% NEO is healthier, but measure with firm specific risk the result is contrary.

9.2.7 Findings (7): Ownership, Performance and Firm Risk

(1) Board ownership and Performance

There are no significant relationship between Board ownership and net income during the periods of 93-95 and 96-98. There are positive relationship between Tobin's Q and BFA, see Table 9.14.

Table 9.14: Board ownership and Performance

Measure	1990-1992	1993- 1995	1996-1998
Net income	positive		
Tobin Q	positive	positive	positive

(2) Board Ownership and firm risk

The regression results show that BFA has a positive relationship with Z-score in the 96-98 periods. This means the larger the BFA, the higher the firm's risk. When measured with firm specific risk, the result is significant only in 93-95 periods, the larger the BFA, the less risky. Also the larger the BFA, the lower liabilities the firm has.

Table 9.15: Ownership and firm risk

	The larger the Board ownership		
	90-92	93-95	96-98
Z-score risk			Less risky
Firm specific risk	Less risky	Less risky	Less risky
Total liability	Less liability	Less liability	Less liability

(3) Implication

With the increase of board ownership firms are positive in performance measured by Tobin's Q, and lower in risk measured by firms specific risk and Total liability. This fact indicates that board with higher percentage of inside ownership are more conservative to maintain the financial risk.

9.2.8 Findings (8): Reporting Quality and Conservatism in UK

(1) Earning pattern in 1985- 2000 periods

There has been increasing negative income over the period 1985-2000. The percentage of negative net income has increased from 3 per cent in 1985 to 47 per cent in listed firms. For the de-listed firms the percentage of negative income, also, has been increasing over the sample period, and the rate is greater than that of listed firms.

(2) Reporting Quality by discretionary accruals
Cumulative discretionary accrual analysis show low discretionary accruals. When analysed using a pooled analysis, there is signs of low discretionary accruals in the period 1991-1995, see Table 9.16

Table 9.16: Reporting Quality by discretionary accruals

	All sample	Listed firm sample	Delisted firm
Pooling analysis		1991- 1995	
Cross-sectional analysis			

(3) Earning conservatism in UK

The negative cumulative non-operating accruals (CNNOA) exist in the period 1988–1997 for model 1 in the all sample, listed firm sample and delisted firm sample, but in model 2, it only exist occurs for the delisted firm sample, see Table 9.17.

Table 9.17: The negative cumulative non-operating accruals

	All sample	Listed firm sample	Delisted firm sample
Model 1	1988- 1997	1988-1995	1988-2000
Model 2	none	none	1987-1995

With Cross-sectional regression of earnings on returns, over the sample period the net income is more sensitive to bad news than good news over the sample periods. This result indicates that there exists conservatism during the 1990s, see Table 9.18.

Table 9.18: Response difference: β(BN)- β GN)

	90-92	93-95	96-98	99-01
β(BN)- β GN)	0.269	0.080	0.553	1.414

Lower BTM indicates higher conservatism. There is relatively strong conservatism in the period of the 1993-1997. This results also supported by Mann Whitney test.

(4) Implication

There are strong evidences of conservatism over the period of the 1990s. Also there is low discretionary evidence after the Cadbury Report. There may a relationship between low discretionary accrual and conservatism.

9.2.9. Findings (9): Board and Conservatism

(1) Cross-sectional regression of earnings on returns

Under the bad news, the firms with separation show more conservative than the firms with duality. Also the firms with more than 30% NEO show more conservative than firms with less than 30 percent NEO, see Table 9.19.

Table 9.19: Board and Conservatism: β(BN)- β GN)

	90-92	93-95	96-98
Firms with separation	More Conservative	More Conservative	More Conservative
More than 30% NEO		More Conservative	More Conservative

(2) CG and BTM

Under the book to market measure, firms with separation have more conservative in earning reporting in the 93-95 period and 96-98 period. Also firms with more than 30% NEO has more conservative reporting in the 96-98 period, see Table 9.20.

Table 9.20: Board and Conservatism: β(BN)- β GN)

	90-92	93-95	96-98
Firms with separation		More Conservative	More Conservative
More than 30% NEO			More Conservative

(3) Implication

Firms with separation and with more than 30% NEO are more conservative in reporting than those with other board structures. Especially after the Cadbury Report the conservative practice is more apparent. This result can be the results of increasing monitoring by boards. With separation of the chairman and CEO, the check and balance seemed to work during the 93-98 periods. Also the adding new NEO were another force to increase monitoring.

9.2.10. Findings (10): Ownership and Conservatism

(1) Board Ownership and conservatism

Firms with less than 5 % BFA show more conservative than firm with more than 5% board ownership, see Table 9.21.

Table 9.21: Ownership and conservatism comparing with 5% ownership

compare	90-92	93-95	96-98	99-01
BFA 5%	BFA<5% is more conservative	BFA<5% is more conservative		BFA<5% is more conservative
BFA 10%	BFA<5% is more conservative	BFA<5% is more conservative		BFA<5% is more conservative
BFA 25%	BFA<5% is more conservative	BFA<5% is more conservative		BFA<5% is more conservative

(2) Implication

The firms with less than 5% board ownership are more conservative than any other firms with more than 5% board ownership. This fact matches with the finding in In Section 9.2.4 and 9.2.9. Firm with separation and with more than 30% NEO are more conservative in reporting than those with other board structures in section 9.2.4. Those firms are the firms that have lower percentage of board ownership. Section 9.2.9 confirm that firms with duality and firms with less than 30% NEO show larger percentage board ownership.

9.2.11 Findings (11) Impact of Conservatism on Default models

(1) Comparing three models

The Altman model has the lowest default rate and is on gentle increase over the period. The Ohlson model has the highest default except at the beginning and like the Altman model is on a gentle rise over the period. Merton model seem most volatile over the period starting initially above the Ohlson model then for the remaining period being below it.

(2) Impact of conservatism on rebuild models

When the models are built by each period data, the Ohlson model drops dramatically to just above the Altman model. As the data have contain more negative income data, the newly built Altman and Ohlson model has no distinction and lost the predictive power.

(3) Implication

When the original Altman model is applied to UK data the default risk increases. The result may explain the Altman's findings, Altman (2003), that the Type II error (misclassifying a non-bankrupt firm as bankruptcy) increased by as much as 15-20%

for all firms. Altman (2003) performed three tests using data from 1969-1975, 1976-1995, and 1997-1999. Givoly and Hayn (2000) reported that there was an increasing pattern of the US accounting conservatism for the period from 1950 to 1998. Under more conservative accounting practices Altman's model will predict greater numbers of bankruptcy than there ought to be and hence the increase in Type II errors.

9.3 Conclusion of the Study

Initially this study starts with 14 research questions. Among them two research question (Q1 and Q2) are answered in Chapter 2 and Chapter 3. Other questions are analysed and concluded in Chapter 8 and Chapter 9. Following is the summary of the answers.

9.3.1 Theory basis of UK Codes

Whilst the Hampel Report contains some concept of the stakeholder perspective, the UK Codes are based on the shareholder perspective. The Codes have adapted various theories as they have developed. The Cadbury Report includes agency theory and resource theory. Yet the Hampel theory includes agency theory, the myopic market theory, steward theory, resource theory and managerial hegemony theory. The combination of theory in Codes makes it difficult to evaluate each theory in practice. Under this circumstance, researches based on single theory (i.e. agency theory) are likely not to be successful since other effects will arise possibly from other theories.

9.3.2 UK codes as risk management

The company scandals motivated the development of UK codes, but these scandals arose from lack of risk management. Hence the UK Codes can be considered to be a risk management initiative. The development of UK codes follows the process of risk management: Awareness, Assessment, Evaluation, and Managing risk. Each code reinforced the role of the risk management. Cadbury Report focuses on the financial

aspect of risk management by way of board and internal control. Greenbury report controls the excessive remuneration of the top management. Hampel Report support the Cadbury Report and expanded the risk management not only financial controls but operational and compliance controls. These developments of UK codes provide the framework on risk management for the UK companies.

9.3.3 Impact of Code/ Ownership on Board structure

The study finds two main factors that determine the structure: the Codes and board ownership. After Cadbury Report (1992), there has been a change in the board structure in UK. The main changes are the separation of chairman and CEO, and increasing the percentages of outside directors in the board. Most firms have adopted the Cadbury recommendations. The board ownership also has affected the board structure. The higher the board ownership, the less separation of the chairman and CEO, and the less percentage of the outside directors the firms have. Also board ownership is positively related to Chairman tenure and CEO tenure. These findings imply that UK codes and ownership study are confounded. The unexplained reason for not following the UK Codes is due to ownership structure.

9.3.4 Impact of UK Codes/ownership on Performance

The research indicates that different results arise if one uses net income and Tobin's Q as performance measurement in board changes. The relationship between board changes and net income is negative, while the relationship between board changes and Tobin's Q is positive. There are positive relationship between Tobin's Q and board ownership.

9.3.5 Impact of UK Codes/ownership on firm risks

The relationship between board changes/ownership and firm risks are measured through Altman's Z-Score and firm specific risks. Altman's model contains two income related variables among five variables, whilst the firm specific risk model is based on stock prices. When measured with Z-Score, firms with advanced corporate governance show higher risk, but when measured with firm specific risks, firms with

advanced corporate governance show either lower than or similar to risk to those less advanced firms. With the increase of board ownership firms are lower in risk measured by firm specific risk and Total liability.

9.3.6 Impact of the Codes/Ownership on reporting

The net income in financial reports follows generally accepted accounting principles. The net income is the bottom line item (net income) after treatment of income and expenses. Therefore the net income contains the information of accounting practice in the company.

In the current research, there seems to be a period of accounting conservative during the 1990s. The Codes have impact on the reporting. The firm with separation and with more than 30% NEO shows more conservative reporting than the firm with duality and less than 30% NEO. Also the firm with lower board ownership shows more conservative reporting than firms with higher board ownership. Also the low discretionary related to more conservative reporting.

From these results, it can be infer that the firms with advanced board structure tend toward conservative financial reporting and this leads to negative relationship between board changes and performance when measured by net income. In such circumstances it may be better to use Tobin's Q to measure performance.

9.3.7 Impact of Conservative data on Risk models

The study also demonstrated how the conservative data influence the risk models. Three risk models were considered: Altman's model, Ohlson's Model, and Merton's Model. Merton model is used as a benchmark. Both Altman's model and Ohlson's model are sensitive to the nature of the data employed giving some concern when using them for assessing risk. It appears in this study that Ohlson's Model is more sensitive than Altman Model.

9.4 Conclusion

The study has explored through an empirical methodology the relationship between changes in corporate governance, performance, risk and conservatism. It is clear from the study that there has been a change in corporate governance reflecting the recommendation of the Cadbury report. This is true both in structure of the board and in ownership. The questions whether these changes have had their desired impact is more problematic. It has been shown that if naive measures of performance are used then there is a great danger of perceiving the changes as having a negative effect. Using more appropriate measures then it is seen that the changes may be having the required effect. The same is true in measure of risk.

From the study it appears the main influence of the changes may have been on the accounting practices with companies that have adopted more advanced corporate governance being more conservative. It is hard to know whether the conservative attitude arises from increased monitoring from the impact of the implementation of the UK codes.

CHAPTER 10
CONTRIBUTION AND FURTHER STUDY

10.0 Introduction

The findings of the study were given in the previous Chapter. These were based on the research choices made. Obviously there can be criticism of the choices made, for all studies have limitations. One cannot address all the issues relevant to an area of work. This has been an empirical exploration of the relationship between corporate governance, performance, risk and conservatism. In such one has to express some reservation, which suggests further research might be needed to confirm the findings.

In this Chapter the main areas of concerns are contribution of this thesis and suggestion of possible further work. For example it might be interesting to consider alternative research approaches, for example qualitative approaches. The size and nature of the study sample might also be a concern, yet no sample can be guaranteed to be a reflection of the population of interest. The analysis selected appeared to be the best to address the issues of relevance to this study. There are others that could have been employed and need to be considered. Throughout the empirical work there is a concern over the noise within the system and perhaps further work is needed to reduce its impact. The study has only addressed specific aspects of the Cadbury Report. It is felt this may be appropriate for further research on the Cadbury Report and the other Reports. These concerns will be discussed in the Chapter.

10.1 Contribution

10.1.1 Explanation of the inconsistent results in the performance studies

The UK studies have shown inconsistent results the relationship of board changes and performance. Several explanations were given for the results. This study provides evidence that the reporting conservatism is one of the reasons for inconsistent results. This finding can be utilized by future study in performance evaluation.

10.1.2 Corporate governance changes and risk

The previous studies have more focused on changes of corporate governance and performance. Few studies have explored the relationship between governance changes and risk changes. This study explored the relationship between corporate governance changes and risk.

10.1.3 Ownership and Compliance to the Codes

In the past studies have concentrated on the UK codes and changes in board structure. , They have used this to explain to what extent the companies have complied with the codes. There are few studies on non-complying firms. This study provides the evidence that board ownership is another important aspect when investigating the codes and corporate governance.

10.1.4 Ownership and conservatism

The conservatism studies in UK are rare. There is no study for the relationship ownership and conservatism. This is the first study to provide evidence of interaction.

10.1.5 Discretionary accruals and Conservatism

Few studies have conducted the relationship between discretionary accruals and conservatism. The studies on discretionary accruals are pervasive in related to earning management. This study reports that the low discretionary related to the accounting conservatism.

10.1.6 Conservatism and default models

The previous studies on default primarily develop the model. No research has considered the impact of conservative accounting data. This study shows the impact of the conservative data on default models.

10.2 Further Study

10.2.1 Alternative Approaches

As indicated in previously there are a number of potential underlying theories for research into corporate governance and these were reviewed in Chapter 2. The study has taken a positivistic approach in which empirical data has been gathered and general patterns of behaviour have been deduced from this information using statistical analysis. Such an approach assumes that it is possible to measure aspects of company and relate these to performance. Hence it is necessary to define aspects, which represent corporate governance and can be quantified, and also to define aspects of performance that can be measured and the two can then be related. This requires the complexity of the codes of corporate governance to be reduced to measurable quantities. It is possible to argue that the codes are fundamentally such that their impact on corporate governance cannot be represented by simple measures. In these circumstances one would have to contemplate other styles of analysis. Alternative qualitative approaches could have been employed.

One approach, which parallels the current study, would be to gather all the public statements associated with corporate governance of firms and the impact of codes and from them tries to determine the impact of the changes. There are several issues, which arise from such an approach. There may be a lack of statements on the impact of the changes in the corporate governance related to the codes. Statements may be ambiguous and require interpretation, and there might be the challenge of subjectivism to the research. It may be difficult to amass sufficient information across a range of companies to form a consistent view of the impact on corporate governance on the codes. Even if there are sufficient statements this may lead to the difficulty of being able gather and analyses the information within the constraints of the current studies.

Another approach would be to negotiate access to all relevant internal information relating to the changes arising from the codes within a set of firms. This again suffers from the many of the problems of the previous approach. Again it may be difficult to

find the appropriate data and there may be again problems in terms of its interpretation. Amount of information to process may be too voluminous to proceed. Again this case study approach may be restricted to a few companies and then there is a question how the results can be generalised.

In defence of the approach taken whilst it has reduced the impact of the codes to some limited measures it has been able to relate these to measurable quantities on performance and risk. It has established some aspects of the relationship which seems consistent with the belief that there has been an impact of the codes on corporate governance and hence performance and risk. It might be worth further investigation of the qualitative aspects of the implementation of the codes along those described above.

10.2.2 Data Collected

All samples can be challenged on the basis that they are not a study of the whole population and that the results obtain should not be inferred to the whole population. This study has elected to look at a specific sub-population, manufacturing companies. It has not investigated Financial Services or Utilities. This choice was justified early in the thesis. The utilities and financial institutions are restricted by regulation and are structurally different.

The sample was selected to reflect the specific target sub-population. The samples contain most companies in the six industries. It is clearly possible that the results obtained are just a reflection of the specific industries. It is hard to assess this without collection of another sample that could confirm the results obtained.

Obviously one aspect of its ability to reflect the population is the size of the sample taken. The size of sample is the result of the compromise between two forces in conflict the need to gain a sufficiently large sample for meaningful results and resources available to carry out the research. It is believed that the sample is of an adequate size given the need to explore an extensive range of variables about the firms incorporated in the sample. Future studies could explore a wider range of

companies and this may overcome some of the limitations, which might be contained within the current study. Also the study of financial institution is needed due to the increasing role of the institutional investors.

10.2.3 Form of Analysis

The approach taken can be characterised as an exploration through statistical methods of the sample gathered by looking splitting the whole sample according to specific measures of interest at specified times. Broad comparisons are made across the whole sample. Many alternative approaches could have been considered. For example it might have been plausible to consider just those companies that had seen change over the period in terms of the measure of interest. This would have ignored a swathe of the population where there may have been impact of the changes due to the code. It is also the case that firms may implement and then reverse the implementation over the period and so there might become difficulties in disentangling the groups. Such an analysis would further reduce the sample size, perhaps making it problematic to obtain significant results. It might be possible to explore such approach, even based on the current sample, to see if consistent results are obtained with the current findings.

10.2.4 Noise

One difficulty facing those who undertake empirical research in finance is the noise in the system. Many factors can have an impact on performance which it is either difficult to include or may be un-measurable. The models used in the study have suffered from this problem, and the lack of some significant results may be due to this problem of high variability. It might be possible to include other variables in the analysis to see if further variation can be accounted for in a systematic manner. The endeavours within the research have not been as successful as desired, though extensive work was carried out to reduce model variation. Further studies might consider other variables to include.

10.2.5 Other Aspects of the Code

This study has only considered the perceived main aspects of the Cadbury Report. There might be other aspects of the Cadbury Report, which could be studied by the current approach. It would require identification of the aspect and an ability to produce an appropriate measure, which could be used as a proxy for it. Further research could be employed to tackle this.

Alongside this would be to explore the impact of the other reports within the UK. For example the Turnbull Report. One might argue that the Turnbull report has specific interest in risk management. The difficulty is assessing whether firms are compliant. This would more detailed study of the firms to ensure they are addressing Turnbull fully. This is left for future researcher to consider.

10.2.6 Developing new discretionary models

The discretionary model has its limitation to discern the difference between discretionary and non-discretionary. This result low R^2 in models. Since the Jones (1991) innovative models, many researchers have developed other models, but the results are not satisfactory. This study had tried to develop new method using DEA (data envelop analysis) models. Yet the model has not developed to the satisfactory level. The information on the discretionary accrual is of importance to both regulators and academics. The research can contribute to an understanding that conservatism may have a major effect on many of the measures used and so new methods may be required to overcome these deficiencies.

10.2.7 Ownership aspect studies

Ownership is still of important aspect of corporate governance. This study mainly analysed the impact of board ownership, but institutional ownership is increasing over the years. The public really require institutional investors to take a more active role in management. The further study is needed to investigate this activity or lack of it. A

further study would face the problem of research methods, as explained earlier. The activity of the investor is not easy to conceive by outsiders.

10.2.8 Conservative data and default models

The interesting in developing credit risk models has increased. Most studies focus on developing models by new technologies, but the data changes are equally important aspect of the default models. This study initiated the exploration of the impact of conservative data on default models in UK data. Researches need to extend this to other countries, especially USA. The tendency of conservatism in USA is reported by Givoly and Hayn (2000).

10.2.9 Corporate governance and enterprise risk management

This study formulated the risk management aspect of corporate governance in chapter 3. The UK codes are interpreted as risk management tools. Based on this framework, this study investigates the financial aspect of risk management. The main finding is the reporting conservatism through the board control, which is enforced by separation of chairman and CEO and Increasing the NEO.

The corporate governance structure in Codes can provides the basic framework of enterprise risk management. The board and internal control have major role to prevent firm risk. This study couldn't afford to setup the enterprise risk management. Further study is needed to establish the framework of enterprise risk management.

10.3 Conclusion

All studies are limited and cannot be expected to address all aspects of the intended area of research. The study has taken a specific empirical approach to research and can be criticised.

In this Chapter, firstly the contribution of this study is shown. The study provided the evidence of inconsistent results of the performance studies. It explored the relationship between risk measures and corporate governance changes, filling a gap in previous studies of corporate governance. Further this study explored ownership to complement the UK codes studies. The relationship of conservatism and ownership, and the relationship between conservatism and default models were investigated.

Secondly, the further work was suggested. There are alternative research approaches, which could have been employed, but it is believed that the one chosen was efficient in establishing the findings obtained. Others could explore qualitative approaches to add to the current findings. Empirical studies are frequently restricted to the sample on which they are based. The study has endeavoured to ensure that the sample reflected the sub-population chosen, but clearly this cannot be guaranteed. The form of analysis was thought best given the nature of the sample taken but clearly further work may be taken to look at specific aspects. Noise bedevils empirical studies and considerable effort was employed to reduce its impact. Further studies could explore introduction of further variables to reduce the noise of the system. Yet it may not be successful since there are so many other factors, which can affect performance and risk within a firm. It is possible to have explored other aspects of the Cadbury Report or of the other Reports. Also the ownership aspect of corporate governance studies is needed. This study can extend to the study of institutional investors. The study on the conservative data on default model is needed. It is felt this may be appropriate for further research on the topic of Corporate Governance, Performance, Risk and Conservatism.

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APPENDIX 1

Data Collection and Data Information

1.1 Data Collection

Table 1: Summary of data collection

Data	Data detail	Sources
Corporate governance	Separation of CEO and Chair Executive Director Non-Executive Director Audit committee Block-holders Big 3 & Big 1 Institutional Investor Auditors	Corporate Resister
Ownership	BFA (Board, Family, Associates)	Crawford's Directory of City connections
Financial Data	Financial Statement Financial Ratio	OSIRIS= FAME
Company Risk	Z-Score Beta & Firm Specific risk	OSIRIS= FAME London Business School Data
Stock Price	Market value of equity	London Business School Data
	Stock price index Individual Stock Price	Data Stream
Interest rate	1Year Treasury Bill rate	http://research.stlouisfed.org/fred2/series/WTB1YA/downloaddata

1.2 Data for Boards

Table 2: Breakdown of sample by duality over time.

SIC	90	91	92	93	94	95	96	98	99	00
All	184	208	206	206	233	264	283	315	288	237
20	41	45	41	45	36	45	42	48	47	40
28	47	50	47	48	56	65	77	84	77	66
35	35	38	37	37	41	47	52	55	50	36
36	40	41	42	42	47	53	59	67	54	44
37	22	22	28	25	29	31	29	33	29	27
38	20	22	22	22	25	26	27	29	33	33

Table 3: Breakdown by NEO percentage data

SIC	90	91	92	93	94	95	96	98	99	00
All	199	205	207	203	237	263	284	323	289	239
20	34	43	35	42	35	42	42	48	47	40
28	44	45	45	46	57	65	77	83	77	63
35	32	35	36	35	42	46	52	56	51	37
36	39	41	42	39	48	53	57	67	54	43
37	28	19	28	20	29	31	29	33	29	27
38	22	22	21	21	26	26	27	29	31	29

1.3 Data for Ownership

Table 4: BFA (Board, family and associates) data.

SIC	90	91	92	93	94	95	96	97	98	99	00
All	128	151	151	165	179	206	209	229	232	194	151
20	24	23	23	28	30	34	32	36	35	31	22
28	24	32	32	33	38	46	50	56	60	48	35
35	16	23	23	27	30	38	43	44	45	37	30
36	30	34	34	37	37	43	42	48	50	40	27
37	20	24	24	25	24	27	24	25	25	20	19
38	14	15	15	15	20	18	18	20	17	18	18

Table 5: Shareholders of Institutional Investors.

SIC	90	91	92	93	94	95	96	98	99	00
All	128	142	192	203	209	250	260	298	274	224
20	21	22	34	33	32	41	40	46	47	39
28	29	33	41	44	51	62	69	79	75	59
35	24	27	34	34	37	45	47	54	47	36
36	23	25	42	42	44	51	54	64	53	41
37	18	20	24	26	25	28	26	29	26	23
38	13	15	17	24	20	23	24	26	26	26

1.4 Data for Tenure

Table 6: Chairman Tenure data.

SIC	90	91	92	93	94	95	96	98	99	00
All	56	70	100	104	161	179	199	234	212	184
20	10	11	15	20	23	30	30	35	32	30
28	14	19	23	26	41	45	57	67	64	54
35	7	12	11	11	22	26	32	37	36	26
36	10	13	27	20	36	37	38	46	35	30
37	9	9	17	14	21	23	23	29	22	21
38	6	6	7	13	18	18	19	20	23	23

Table 7: CEO Tenure data.

SIC	90	91	92	93	94	95	96	98	99	00
All	54	78	105	113	147	178	194	222	205	171
20	8	13	18	26	23	30	35	38	34	32
28	15	21	24	30	42	47	57	61	58	47
35	7	10	16	14	19	25	30	34	37	23
36	11	15	25	20	31	39	35	44	34	31
37	7	11	13	11	18	21	21	24	19	16
38	6	8	9	12	14	16	16	21	23	22

Table 8: Financial director Tenure data.

SIC	90	91	92	93	94	95	96	98	99	00
All	87	111	116	130	167	190	199	226	216	196
20	14	25	22	28	26	33	33	39	39	37
28	15	21	16	26	40	44	51	56	62	51
35	17	22	26	27	30	37	37	40	35	24
36	18	23	28	27	36	37	39	49	41	37
37	13	10	13	9	17	21	21	20	16	21
38	10	10	11	13	18	18	18	22	23	26

1.5 Data for Risk

Table 9: Z-Score data.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
all	159	162	138	170	211	273	303	288	297	306	277	222
20	34	36	30	35	37	47	50	47	53	51	43	34
28	35	35	32	38	52	67	79	72	80	80	72	61
35	27	22	22	30	34	43	50	49	46	45	41	30
36	29	31	23	32	43	56	62	59	56	64	65	46
37	18	22	13	19	23	32	32	27	29	27	24	22
38	16	16	18	16	22	28	30	34	33	39	32	29

Table 10: Firm Specific data.

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
all	203	209	211	218	235	255	268	293	318	311	283	290
20	33	32	32	33	33	37	41	42	47	44	38	39
28	56	58	59	61	62	64	66	73	78	73	66	78
35	33	37	37	38	43	46	46	53	60	59	54	51
36	40	41	42	44	52	58	61	66	68	66	63	60
37	21	21	21	21	23	24	27	28	31	31	27	29
38	20	20	20	21	22	26	27	31	34	38	35	33

1.6 Discussion of data

Table 1 shows the incorporated companies before the specific year. The Total firm in 1990 indicates that 1,628 firms are listed before year 1990. The number of the total firms increased to 2,512 at the end of the year 2000. As I mentioned in the introductory chapter, this study focuses on manufacturing industry. Among the industry, 6 sub-industries are chosen. The six sub-industries represent almost 20% of the total firms, see Table 1.

Table 1: Incorporation before specific year

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Total Firm	1628	1685	1744	1824	1913	1987	2067	2134	2206	2325	2512
SIC20	51	53	53	54	54	54	54	54	55	56	58
SIC28	64	67	69	76	78	82	87	92	97	101	105
SIC35	60	60	62	65	65	68	69	69	71	73	76
SIC36	75	76	77	82	86	88	92	94	95	100	104
SIC37	31	31	32	33	34	34	35	35	35	36	36
SIC38	37	39	39	41	41	43	43	43	43	44	47
Sum SIC20-38	318	326	332	351	358	369	380	387	396	410	426
SIC20-38 (%)	0.20	0.19	0.19	0.19	0.19	0.19	0.18	0.18	0.18	0.18	0.17

The data related to this study is shown in Table 2. Unfortunately there is missing data for some of the companies and so the total number of the companies is less than presented in Table 1. In most cases this represents more than 50% of the companies of the sub-section. There may be some bias because their reporting may be different from that of population. This could be considered in future research.

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Table 2: Number of data from Sample Industry

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Duality	184	208	206	206	233	264	283		315	288	237
NEO	199	205	207	203	237	263	284		323	289	239
BFA	128	151	151	165	179	206	209	229	232	194	151
Institution	128	142	192	203	209	250	260		298	274	224
Z-Score	159	162	138	170	211	273	303	288	297	306	277
FSR	203	209	211	218	235	255	268	293	318	311	283

Table 3: Percentage of data from Sample Industry

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Duality	0.58	0.64	0.62	0.59	0.65	0.72	0.74	0.00	0.80	0.70	0.56
NEO	0.63	0.63	0.62	0.58	0.66	0.71	0.75	0.00	0.82	0.70	0.56
BFA	0.40	0.46	0.45	0.47	0.50	0.56	0.55	0.59	0.59	0.47	0.35
Institution	0.40	0.44	0.58	0.58	0.58	0.68	0.68	0.00	0.75	0.67	0.53
Z-Score	0.50	0.50	0.42	0.48	0.59	0.74	0.80	0.74	0.75	0.75	0.65
FSR	0.64	0.64	0.64	0.62	0.66	0.69	0.71	0.76	0.80	0.76	0.66

1.6 Discussion of failed companies

The failed companies in the risk models are chosen by three criteria; two year consecutive negative income, delist and stock price availability. The two year consecutive negative income indicates poor performance of the company. There are many other reasons for delisting from stock market besides for negative income. The sample consists of 156 delisted firms, among which 2 firms are under administration, 7 firms are under liquidation process, 37 firms are related to M&A. The database do not provide any information for the rest of the delisted firms.

As indicated before, 23 companies are selected for failed companies; among which only 2 companies are under the liquidation processes, the rest companies are not related to administration, liquidation, and M&A. Therefore the samples of the failed companies are chosen by poor performance and then delisted.

APPENDIX 2

Reporting Quality – Calculation of discretionary accruals

2.1 Pooling Analysis

The fixed effects model incorporates difference between firms by allowing the intercept to change. The intercept is different for each firm, but each intercept stays constant over time.

(1) SAS Program for Pooling Analysis by a fixed effect Model

```
PROC IMPORT OUT= WORK.accrualpool
            DATAFILE= "D:\Discretionary\accrualpool.xls"
            DBMS=EXCEL REPLACE;
     SHEET="'1$'";
     GETNAMES=YES;
     MIXED=NO;
     SCANTEXT=YES;
     USEDATE=YES;
     SCANTIME=YES;
RUN;
proc glm data=WORK.accrualpool ;
class ID;
model TAccrual=ID Assets REVREC PPE/ solution noint;
run;
```

(2) Pooling analysis results

The value of the test statistics F=2.96 yields a p-value of less than .0001; we reject the null hypothesis that the intercept parameters for all firms are equal.

Table 1

Dependent Variable: Total Accrual					
Source	DF	Sum of squares	Mean squares	F Value	Pr > F
Model	367	16.74016220	0.04561352	2.96	<.0001
Error	2371	36.59701015	0.01543526		
Uncorrected Total	2738	53.33717235			

R-Square	Coeff Var	Root MSE	TAccrual Mean
0.280788	-415.1348	0.124239	-0.029927

Parameter estimates of Assets, REVREC and PPE are the same for all firms but the intercept are vary by subject.

		Parameter Estimate	Standard Error	t Value	Pr > |t|
ID	1	-0.02823701	0.04191328	-0.67	0.5006
ID	2	-0.04388774	0.03666311	-1.20	0.2314
ID	3	-0.23967204	0.08789455	-2.73	0.0064
ID	4	0.01785435	0.03491219	0.51	0.6091
ID	5	-0.03911156	0.07193553	-0.54	0.5867
ID	6	-0.00738480	0.05751854	-0.13	0.8979
ID	7	-0.05958771	0.03779580	-1.58	0.1150
ID	8	-0.06914937	0.05747606	-1.20	0.2291
ID	9	-0.02092945	0.05119060	-0.41	0.6827
ID	10	-0.01909996	0.05598463	-0.34	0.7330
ID	11	-0.04961646	0.04796829	-1.03	0.3011
ID	12	-0.18006804	0.12433776	-1.45	0.1477
ID	13	-0.01448819	0.04143328	-0.35	0.7266
ID	14	0.00482290	0.03588851	0.13	0.8931
ID	15	-0.01359630	0.04314142	-0.32	0.7527
ID	17	-0.09196782	0.07190359	-1.28	0.2010
ID	18	0.14177032	0.07215667	1.96	0.0496
ID	19	-0.00941754	0.05603922	-0.17	0.8666
ID	20	-0.00472258	0.05648057	-0.08	0.9334
ID	21	-0.05038353	0.05188595	-0.97	0.3316
ID	22	-0.03407652	0.03498804	-0.97	0.3302
ID	24	-0.01062448	0.08799353	-0.12	0.9039
ID	25	-0.03647538	0.03588188	-1.02	0.3095
ID	27	-0.04119958	0.03931218	-1.05	0.2947
ID	28	0.04347960	0.06243689	0.70	0.4863
ID	30	0.02052921	0.05673078	0.36	0.7175
ID	33	-0.12131281	0.04841035	-2.51	0.0123
ID	34	-0.00230743	0.06285432	-0.04	0.9707
ID	35	-0.02865735	0.05103573	-0.56	0.5745
ID	36	-0.12560427	0.05147864	-2.44	0.0148
ID	37	-0.00244792	0.04761799	-0.05	0.9590
ID	38	0.01524915	0.03943716	0.39	0.6990
ID	42	-0.02746687	0.03515312	-0.78	0.4347
ID	43	-0.07824581	0.03883700	-2.01	0.0440
ID	44	-0.01231321	0.03504978	-0.35	0.7254
ID	45	-0.01799544	0.03604130	-0.50	0.6176
ID	46	0.03140631	0.05787724	0.54	0.5874
ID	47	-0.00591009	0.05577389	-0.11	0.9156
ID	48	0.03405171	0.08937085	0.38	0.7032
ID	49	-0.06783560	0.03749258	-1.81	0.0705
ID	50	-0.02149158	0.04177248	-0.51	0.6070
ID	51	-0.04269409	0.03814332	-1.12	0.2631
ID	52	0.02319013	0.12470323	0.19	0.8525
ID	53	0.68787661	0.12676739	5.43	<.0001

ID	54	0.01378934	0.04524646	0.30	0.7606
ID	56	0.03758613	0.08835330	0.43	0.6706
ID	57	-0.01628419	0.03482398	-0.47	0.6401
ID	58	-0.07442707	0.05582342	-1.33	0.1826
ID	59	-0.01885758	0.04455994	-0.42	0.6722
ID	60	-0.09533069	0.03741180	-2.55	0.0109
ID	61	-0.03480524	0.03553271	-0.98	0.3274
ID	62	-0.01303406	0.04939025	-0.26	0.7919
ID	63	-0.13123304	0.06513026	-2.01	0.0440
ID	64	-0.07802034	0.03820322	-2.04	0.0412
ID	65	-0.01874578	0.03637077	-0.52	0.6063
ID	66	-0.04667318	0.03534621	-1.32	0.1868
ID	67	-0.00944810	0.03512438	-0.27	0.7880
ID	68	-0.01419940	0.03838198	-0.37	0.7115
ID	69	0.04767504	0.03675569	1.30	0.1947
ID	70	-0.07273151	0.07280141	-1.00	0.3179
ID	71	-0.07541885	0.03690744	-2.04	0.0411
ID	72	-0.00812960	0.06288261	-0.13	0.8971
ID	73	-0.02442541	0.03695557	-0.66	0.5087
ID	74	-0.05700995	0.03636098	-1.57	0.1170
ID	75	-0.18384190	0.12447381	-1.48	0.1398
ID	76	-0.03025882	0.03694620	-0.82	0.4129
ID	77	0.02758823	0.05565380	0.50	0.6201
ID	78	-0.43847057	0.12434210	-3.53	0.0004
ID	79	-0.02150510	0.04034793	-0.53	0.5941
ID	80	-0.03533189	0.03566749	-0.99	0.3220
ID	85	-0.04252634	0.07229278	-0.59	0.5564
ID	88	-0.02139467	0.04190463	-0.51	0.6097
ID	89	-0.08333489	0.03825050	-2.18	0.0295
ID	90	-0.00559420	0.06241708	-0.09	0.9286
ID	92	0.00723392	0.03817612	0.19	0.8497
ID	94	-0.02490346	0.03823389	-0.65	0.5149
ID	95	0.17214738	0.05095165	3.38	0.0007
ID	96	-0.02934569	0.03640136	-0.81	0.4202
ID	98	-0.05190620	0.06275885	-0.83	0.4083
ID	100	-0.04682456	0.03471992	-1.35	0.1776
ID	101	0.05574445	0.03463132	1.61	0.1076
ID	102	-0.14355880	0.03559858	-4.03	<.0001
ID	104	0.16353070	0.08966449	1.82	0.0683
ID	106	0.03311594	0.07571416	0.44	0.6619
ID	107	0.09997043	0.05108785	1.96	0.0505
ID	108	-0.04819592	0.03548391	-1.36	0.1745
ID	109	-0.02441455	0.04710870	-0.52	0.6043

ID	111	-0.08373046	0.05100204	-1.64	0.1008
ID	113	-0.02082433	0.03479374	-0.60	0.5496
ID	114	0.10788444	0.05683768	1.90	0.0578
ID	116	-0.01573214	0.05244452	-0.30	0.7642
ID	117	-0.02111728	0.04229396	-0.50	0.6176
ID	119	-0.00717585	0.04203118	-0.17	0.8645
ID	121	-0.03898433	0.08865413	-0.44	0.6602
ID	123	-0.03273264	0.06762470	-0.48	0.6284
ID	124	-0.09065214	0.03892475	-2.33	0.0199
ID	125	-0.06619742	0.03820178	-1.73	0.0833
ID	126	-0.07517036	0.03698750	-2.03	0.0422
ID	127	-0.03086113	0.04453417	-0.69	0.4884
ID	128	-0.03475041	0.03630762	-0.96	0.3386
ID	129	-0.07876494	0.03720475	-2.12	0.0344
ID	130	-0.03118219	0.03552099	-0.88	0.3801
ID	131	-0.03034603	0.04528057	-0.67	0.5028
ID	132	-0.07391533	0.05713577	-1.29	0.1959
ID	133	-0.06612787	0.03578296	-1.85	0.0647
ID	134	-0.07041224	0.05182298	-1.36	0.1744
ID	135	-0.01464849	0.04853053	-0.30	0.7628
ID	137	-0.03731440	0.04027903	-0.93	0.3543
ID	138	-0.03808542	0.05590977	-0.68	0.4958
ID	140	0.34697071	0.08788044	3.95	<.0001
ID	141	0.23654477	0.04509697	5.25	<.0001
ID	142	-0.01240697	0.05277749	-0.24	0.8142
ID	143	0.32893041	0.09018711	3.65	0.0003
ID	144	-0.01757482	0.05140600	-0.34	0.7325
ID	145	-0.07208477	0.08837036	-0.82	0.4147
ID	146	-0.04952298	0.03730103	-1.33	0.1844
ID	147	-0.07547465	0.06382599	-1.18	0.2371
ID	148	-0.05266260	0.05565423	-0.95	0.3441
ID	149	-0.03074842	0.03611262	-0.85	0.3946
ID	150	-0.03201996	0.03555360	-0.90	0.3679
ID	151	-0.04690470	0.03550977	-1.32	0.1867
ID	152	0.01979774	0.05573446	0.36	0.7225
ID	153	-0.04530082	0.03596633	-1.26	0.2080
ID	154	-0.05274077	0.03491787	-1.51	0.1311
ID	155	-0.04428098	0.03883843	-1.14	0.2543
ID	156	-0.07038007	0.08812014	-0.80	0.4246
ID	157	0.01666061	0.12452761	0.13	0.8936
ID	165	-0.10322191	0.08799594	-1.17	0.2409
ID	166	-0.06329310	0.12427995	-0.51	0.6106
ID	167	0.06792931	0.12475812	0.54	0.5862
ID	168	-0.19804289	0.08835574	-2.24	0.0251

ID	169	-0.03214045	0.07224379	-0.44	0.6564
ID	172	-0.05434616	0.05599466	-0.97	0.3319
ID	173	-0.04162420	0.03671677	-1.13	0.2571
ID	174	-0.02621906	0.05617286	-0.47	0.6407
ID	176	-0.11747301	0.05206826	-2.26	0.0242
ID	177	-0.05214928	0.06231609	-0.84	0.4028
ID	178	-0.07432195	0.05113798	-1.45	0.1463
ID	179	-0.02659569	0.05105346	-0.52	0.6025
ID	181	0.01213294	0.04697212	0.26	0.7962
ID	182	0.06072071	0.07181098	0.85	0.3979
ID	184	-0.05608667	0.03625252	-1.55	0.1220
ID	185	-0.03459147	0.03518855	-0.98	0.3257
ID	186	-0.01806218	0.03468281	-0.52	0.6026
ID	187	-0.01564706	0.06268031	-0.25	0.8029
ID	188	-0.02109142	0.03649337	-0.58	0.5634
ID	189	-0.04785173	0.04737060	-1.01	0.3125
ID	190	-0.03773988	0.03523720	-1.07	0.2843
ID	191	-0.03918792	0.04215290	-0.93	0.3526
ID	194	0.21846814	0.08850077	2.47	0.0136
ID	195	-0.06639880	0.05106158	-1.30	0.1936
ID	196	-0.06884134	0.03468846	-1.98	0.0473
ID	197	-0.02081239	0.12470934	-0.17	0.8675
ID	198	0.10688005	0.12445706	0.86	0.3906
ID	199	0.17535800	0.07253818	2.42	0.0157
ID	201	-0.03837166	0.03650597	-1.05	0.2933
ID	202	0.51888945	0.06243170	8.31	<.0001
ID	203	-0.02533273	0.03648882	-0.69	0.4876
ID	204	-0.04301515	0.05614639	-0.77	0.4437
ID	205	-0.08928567	0.05090916	-1.75	0.0796
ID	206	-0.02913865	0.03524797	-0.83	0.4085
ID	207	-0.06310644	0.03885720	-1.62	0.1045
ID	208	0.03931224	0.03938035	-1.00	0.3183
ID	209	-0.01422046	0.04447255	-0.32	0.7492
ID	210	-0.02385719	0.03860834	-0.62	0.5367
ID	211	-0.01644124	0.03571968	-0.46	0.6454
ID	213	0.16094050	0.07700630	2.09	0.0367
ID	214	-0.06217921	0.04704709	-1.32	0.1864
ID	216	-0.04757445	0.05574580	-0.85	0.3935
ID	218	-0.21040497	0.12488571	-1.68	0.0922
ID	219	0.09958411	0.12472137	0.80	0.4247
ID	220	-0.48432670	0.12428769	-3.90	0.0001
ID	221	0.14262833	0.08798614	1.62	0.1051
ID	222	-0.03680297	0.03525444	-1.04	0.2966
ID	223	-0.04502834	0.03557032	-1.27	0.2057
ID	224	-0.03818747	0.03624382	-1.05	0.2922

ID	225	-0.05542627	0.03568372	-1.55	0.1205
ID	226	-0.02665861	0.03515729	-0.76	0.4484
ID	227	-0.03645109	0.03507770	-1.04	0.2988
ID	228	-0.05541051	0.04189689	-1.32	0.1861
ID	229	0.09733004	0.12467607	0.78	0.4351
ID	230	-0.08507891	0.05776380	-1.47	0.1409
ID	231	1.07837148	0.12630651	8.54	<.0001
ID	232	0.77775266	0.12521638	6.21	<.0001
ID	233	0.08437567	0.12474945	0.68	0.4989
ID	235	-0.07804269	0.04428972	-1.76	0.0782
ID	236	-0.11325761	0.08811354	-1.29	0.1988
ID	237	-0.01626659	0.03998661	-0.41	0.6842
ID	238	0.04522209	0.08817829	0.51	0.6081
ID	239	-0.02739065	0.03591711	-0.76	0.4458
ID	240	-0.07620909	0.04752900	-1.60	0.1090
ID	241	-0.02561859	0.03541238	-0.72	0.4695
ID	242	-0.01202725	0.03537689	-0.34	0.7339
ID	243	-0.04427651	0.03482901	-1.27	0.2038
ID	244	-0.04269400	0.03518227	-1.21	0.2251
ID	245	-0.05108666	0.03550400	-1.44	0.1503
ID	246	-0.14781788	0.04144490	-3.57	0.0004
ID	247	-0.00766857	0.03495163	-0.22	0.8264
ID	248	-0.02492337	0.03755362	-0.66	0.5070
ID	251	-0.02023747	0.03559578	-0.57	0.5697
ID	252	-0.03542380	0.04212384	-0.84	0.4005
ID	253	-0.07232205	0.04756378	-1.52	0.1285
ID	254	-0.01336546	0.04088648	-0.33	0.7438
ID	257	0.10270213	0.05600066	1.83	0.0668
ID	258	-0.02840171	0.03941493	-0.72	0.4712
ID	262	0.22931931	0.12438535	1.84	0.0654
ID	263	-0.03383262	0.07303746	-0.46	0.6432
ID	264	-0.04748010	0.03687699	-1.29	0.1980
ID	265	0.02510008	0.12436176	0.20	0.8401
ID	266	-0.01394325	0.03791729	-0.37	0.7131
ID	267	-0.15966361	0.12514040	-1.28	0.2021
ID	268	-0.02272657	0.03814676	-0.60	0.5514
ID	271	0.06785944	0.08889523	0.76	0.4453
ID	272	0.06838157	0.08891426	0.77	0.4419
ID	273	-0.01732761	0.08952388	-0.19	0.8465
ID	275	-0.02802903	0.03600675	-0.78	0.4364
ID	276	-0.07089559	0.12435905	-0.57	0.5687
ID	279	-0.06183642	0.03953380	-1.56	0.1179
ID	281	-0.03325427	0.05971968	-0.56	0.5777
ID	282	-0.05032594	0.04205817	-1.20	0.2316

ID	283	-0.04562863	0.05647046	-0.81	0.4192
ID	284	0.37171345	0.08996749	4.13	<.0001
ID	286	-0.11811795	0.08920159	-1.32	0.1856
ID	287	-0.08473686	0.03795235	-2.23	0.0257
ID	288	-0.04581625	0.12473656	-0.37	0.7134
ID	289	-0.23546845	0.12425810	-1.89	0.0582
ID	290	-0.00520656	0.04794363	-0.11	0.9135
ID	291	0.02066904	0.05754901	0.36	0.7195
ID	292	-0.01899230	0.03704644	-0.51	0.6082
ID	293	0.01283601	0.06663968	0.19	0.8473
ID	294	-0.21968630	0.05771156	-3.81	0.0001
ID	296	-0.22326517	0.07257294	-3.08	0.0021
ID	297	-0.16253133	0.12424719	-1.31	0.1910
ID	298	-0.14029172	0.07200294	-1.95	0.0515
ID	299	-0.00549778	0.03860520	-0.14	0.8868
ID	300	-0.01589022	0.07188980	-0.22	0.8251
ID	301	-0.04192660	0.03609361	-1.16	0.2455
ID	302	-0.03997731	0.03526214	-1.13	0.2570
ID	303	-0.04156086	0.03898296	-1.07	0.2865
ID	304	-0.10487667	0.06342648	-1.65	0.0984
ID	305	-0.04974070	0.04500166	-1.11	0.2691
ID	306	-0.02101187	0.03550240	-0.59	0.5540
ID	308	-0.01048350	0.04784015	-0.22	0.8266
ID	309	-0.01615202	0.05074371	-0.32	0.7503
ID	310	-0.03361223	0.08855491	-0.38	0.7043
ID	311	-0.14760323	0.08828642	-1.67	0.0947
ID	312	-0.06697361	0.03710161	-1.81	0.0712
ID	313	-0.05393223	0.06289799	-0.86	0.3913
ID	315	-0.02157566	0.08827332	-0.24	0.8069
ID	316	-0.07095530	0.03909917	-1.81	0.0697
ID	317	-0.02527763	0.07458358	-0.34	0.7347
ID	318	-0.08031080	0.03955109	-2.03	0.0424
ID	320	0.10752717	0.12428140	0.87	0.3870
ID	321	-0.04765441	0.03882577	-1.23	0.2198
ID	322	0.11442184	0.12804939	0.89	0.3716
ID	323	-0.00438001	0.03544233	-0.12	0.9017
ID	324	-0.09270737	0.06215374	-1.49	0.1359
ID	325	-0.20082454	0.03823245	-5.25	<.0001
ID	326	0.00395627	0.03545837	0.11	0.9112
ID	327	0.07516986	0.06365384	1.18	0.2378
ID	329	-0.09402858	0.12525180	-0.75	0.4529
ID	330	-0.06662843	0.06330345	-1.05	0.2927
ID	331	-0.03195916	0.04185630	-0.76	0.4452
ID	333	-0.02590886	0.03585882	-0.72	0.4700
ID	334	-0.06988310	0.07186990	-0.97	0.3310
ID	336	-0.12293983	0.07182916	-1.71	0.0871

ID	337	-0.02898761	0.05154607	-0.56	0.5739
ID	338	-0.16689674	0.08796385	-1.90	0.0579
ID	339	-0.26192271	0.08794759	-2.98	0.0029
ID	340	-0.03343864	0.03553088	-0.94	0.3467
ID	341	-0.07978789	0.05719713	-1.39	0.1632
ID	342	-0.11964200	0.12483150	-0.96	0.3379
ID	343	-0.06953345	0.06030294	-1.15	0.2490
ID	344	-0.00291758	0.06295763	-0.05	0.9630
ID	345	0.00410222	0.07586644	0.05	0.9569
ID	346	-0.05813145	0.03793522	-1.53	0.1256
ID	347	-0.07242222	0.07237110	-1.00	0.3171
ID	348	-0.03563071	0.03692916	-0.96	0.3347
ID	349	-0.05355149	0.03827969	-1.40	0.1620
ID	350	-0.04726930	0.03820839	-1.24	0.2162
ID	351	1.02599056	0.08797541	11.66	<.0001
ID	352	-0.10662753	0.05107413	-2.09	0.0369
ID	353	-0.11243947	0.05567805	-2.02	0.0436
ID	354	0.01516597	0.03970308	0.38	0.7025
ID	355	-0.01616800	0.05596943	-0.29	0.7727
ID	356	-0.05583059	0.03740786	-1.49	0.1357
ID	357	-0.03100821	0.03721935	-0.83	0.4049
ID	358	0.03260436	0.04472010	0.73	0.4660
ID	359	0.00080265	0.03895369	0.02	0.9836
ID	360	-0.11880308	0.06527262	-1.82	0.0689
ID	361	-0.03658489	0.03863019	-0.95	0.3437
ID	362	-0.01928070	0.04747663	-0.41	0.6847
ID	363	-0.13398714	0.07242399	-1.85	0.0644
ID	364	-0.04469757	0.03985517	-1.12	0.2622
ID	365	-0.03226369	0.07200422	-0.45	0.6541
ID	366	-0.01786992	0.04502780	-0.40	0.6915
ID	367	-0.06195389	0.06303884	-0.98	0.3258
ID	368	0.03090517	0.05146358	0.60	0.5482
ID	369	-0.02129651	0.03727248	-0.57	0.5678
ID	370	-0.02712958	0.06265494	-0.43	0.6651
ID	371	-0.02499772	0.04427161	-0.56	0.5724
ID	372	-0.02297667	0.03659522	-0.63	0.5302
ID	373	0.02297140	0.03776060	0.61	0.5430
ID	374	-0.10681516	0.05685879	-1.88	0.0604
ID	375	-0.05404707	0.03649784	-1.48	0.1388
ID	376	-0.05686488	0.03656571	-1.56	0.1200
ID	377	-0.04848806	0.06221635	-0.78	0.4359
ID	378	-0.04991539	0.03920877	-1.27	0.2031
ID	379	-0.03211306	0.04012524	-0.80	0.4236
ID	380	-0.03507845	0.04200553	-0.84	0.4038
ID	381	- 0.08604396	0.04797891	-1.79	0.0730

ID	382	-0.00572378	0.03970574	-0.14	0.8854
ID	383	-0.02676221	0.04448213	-0.60	0.5475
ID	384	-0.04596771	0.04758817	-0.97	0.3342
ID	385	0.01568567	0.03856055	0.41	0.6842
ID	386	-0.04055802	0.03930276	-1.03	0.3022
ID	387	-0.02909331	0.03981518	-0.73	0.4650
ID	388	-0.05171670	0.05114913	-1.01	0.3121
ID	389	-0.04517483	0.04154963	-1.09	0.2770
ID	390	-0.05605814	0.03837800	-1.46	0.1442
ID	391	-0.05361877	0.03982105	-1.35	0.1783
ID	392	-0.07484353	0.04050917	-1.85	0.0648
ID	393	-0.01503330	0.04526070	-0.33	0.7398
ID	395	-0.03989498	0.07208028	-0.55	0.5800
ID	396	-0.14664018	0.08824533	-1.66	0.0967
ID	397	-0.03332102	0.07265080	-0.46	0.6465
ID	398	0.00993799	0.03757842	0.27	0.7903
ID	399	-0.10437263	0.03922034	-2.66	0.0078
ID	400	-0.00002010	0.12445631	-0.00	0.9999
ID	401	0.01124297	0.03613706	0.31	0.7557
ID	402	0.04458947	0.06283179	0.71	0.4780
ID	403	-0.05668539	0.04444759	-1.28	0.2023
ID	404	-0.05201857	0.03878339	-1.34	0.1800
ID	405	-0.04706010	0.04052707	-1.16	0.2457
ID	406	-0.00467196	0.03993891	-0.12	0.9069
ID	407	0.08456420	0.05577163	1.52	0.1296
ID	408	-0.03917918	0.04513322	-0.87	0.3854
ID	409	-0.02308383	0.04695054	-0.49	0.6230
ID	410	-0.08093153	0.04445525	-1.82	0.0688
ID	411	0.05403580	0.05611393	0.96	0.3357
ID	412	0.00381092	0.05588964	0.07	0.9456
ID	413	-0.08106782	0.03995903	-2.03	0.0426
ID	414	-0.01739647	0.05718122	-0.30	0.7610
ID	415	-0.09459645	0.07198303	-1.31	0.1889
ID	416	-0.03534349	0.03973783	-0.89	0.3739
ID	417	0.00801262	0.08798257	0.09	0.9274
ID	418	-0.05418861	0.04053192	-1.34	0.1814
ID	419	-0.02461432	0.03970647	-0.62	0.5354
ID	420	-0.03482727	0.07394346	-0.47	0.6377
ID	421	-0.08940802	0.04234527	-2.11	0.0348
ID	422	-0.03877028	0.03970205	-0.98	0.3289
ID	423	-0.06422402	0.04091519	-1.57	0.1166
ID	424	-0.02943340	0.07201843	-0.41	0.6828
ID	425	-0.06906716	0.08961526	-0.77	0.4410
ID	426	0.02128495	0.04059743	0.52	0.6001

ID	427	-0.03421037	0.04451263	-0.77	0.4422
ID	428	-0.02617310	0.04248934	-0.62	0.5380
ID	429	-0.06166411	0.04833803	-1.28	0.2022
ID	430	-0.03573982	0.07208420	-0.50	0.6201
ID	431	-0.02565693	0.05167950	-0.50	0.6196
ID	432	-0.02725400	0.04509641	-0.60	0.5457
ID	433	0.01916052	0.12450204	0.15	0.8777
ID	434	-0.04493675	0.06230789	-0.72	0.4709
ID	435	-0.01154072	0.08845010	-0.13	0.8962
Assets		76.22944644	28.22055418	2.70	0.0070
REVREC		0.03166758	0.00906554	3.49	0.0005
PPE		-0.01159182	0.02447266	-0.47	0.6358

2.2 Cross-sectional Regression results

The Table 2 shows the Cross-sectional regression results. The regression used ordinary least squares (OLS) estimation to the below equation 13 times.

$$TA_{it}/A_{it-1} = \alpha_{1it}[1/A_{it-1}] + \alpha_{2it}[\Delta Sale_{it}/A_{it-1}] + \alpha_{3it}[PPE_{it}/A_{it-1}]$$

Adjust R^2 shows very low over the period.

Table 2 Regression results

	88	89	90	91	92	93	94	95	96	97	98	99	00
N	114	145	158	168	173	187	208	232	264	283	279	271	256
R^2	0.13	0.02	0.00	0.06	0.07	0.02	0.07	0.01	0.00	0.04	0.02	0.01	0.42
A-R^2	0.11	0.00	-0.02	0.04	0.05	0.00	0.06	0.00	-0.01	0.03	0.01	0.00	0.41
Con	0.01	-0.03	-0.05	-0.01	-0.01	-0.01	-0.03	-0.02	0.00	-0.03	-0.04	-0.04	-0.05
(sig	(0.52)	(0.04)	(0.00)	(0.51)	(0.55)	(0.58)	(0.05)	(0.48)	(0.83)	(0.02)	(0.08)	(0.00)	(0.00)
Asset	14.8	-6.9	27.7	-260	-260	-190	232.1	95.3	-17.5	141.3	163.3	69.9	957.1
(sig)	(0.61)	(0.89)	(0.74)	(0.05)	(0.03)	(0.14)	(0.00)	(0.25)	(0.87)	(0.13)	(0.14)	(0.27)	(0.00)
Sales	0.10	0.04	-0.01	0.04	0.06	0.01	0.02	0.04	-0.01	0.05	0.06	0.02	0.09
(sig	(0.00)	(0.09)	(0.76)	(0.12)	(0.01)	(0.79)	(0.40)	(0.33)	(0.73)	(0.01)	(0.14)	(0.38)	(0.00)
PPE	-1.00	0.00	0.00	-0.08	-0.07	-0.04	-0.04	-0.04	-0.03	-0.03	-0.04	-0.03	-0.05
(sig)	(-2.15)	(0.94)	(0.92)	(0.01)	(0.03)	(0.33)	(0.24)	(0.43)	(0.44)	(0.33)	(0.51)	(0.31)	(0.21)

APPENDIX 3
Cumulative negative non-operating accruals (CNNOA)

3.1 Listed firm Samples

The breakdown of accruals between listed and delisted companies is of interest. See Figure 1 for listed companies. In Model 1 for the listed firms, the Figure shows that the negative cumulative non-operating accruals exist during the periods of 1998-1995. In Model 2 for the listed firms, there do not exist any sign of the negative cumulative non-operating accruals see Figure 2. The difference between Operating accruals and Working capital accruals is presented in Figure 3.

Figure 1 Cumulative negative non-operating accruals with listed firms

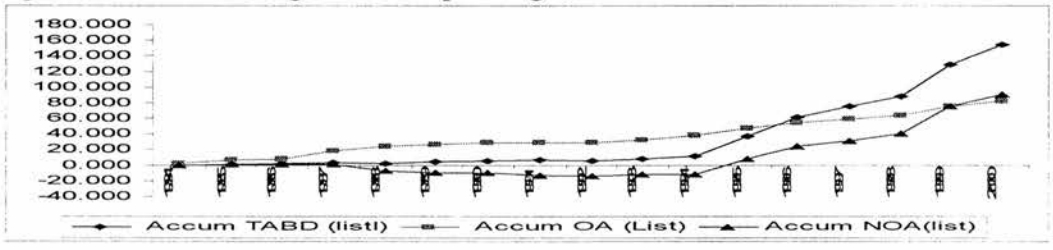


Figure 2 Cumulative negative non-operating accruals with listed firms

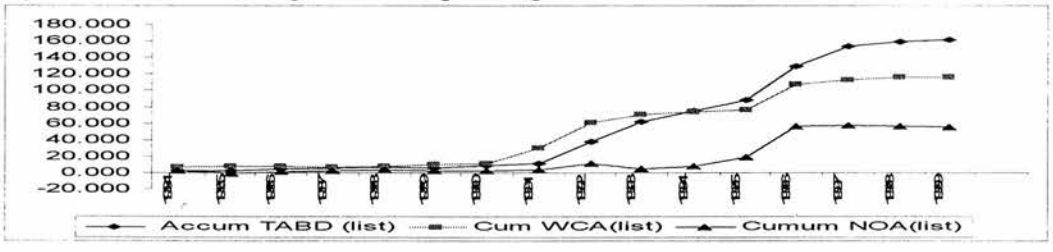
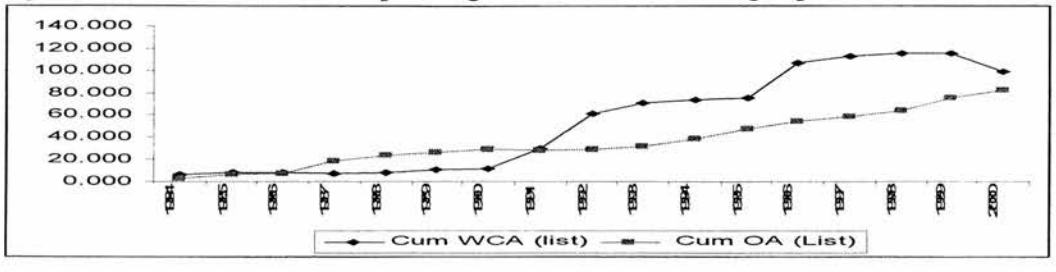


Figure 3 Difference between Operating accruals and Working capital accruals



3.2 Delisted Firms Samples

The same analysis can be repeated for delisted companies. For the delisted firms in Model 1, there exist the negative cumulative non-operating accruals over the sample periods, see Figure 4. For Model 2, there exist the negative cumulative non-operating accruals before 1995, see Figure 5. This result is different from that of the listed firm sample. The difference between Operating accruals and Working capital accruals is presented in Figure 6

Figure 4 Cumulative negative non-operating accruals with listed firms

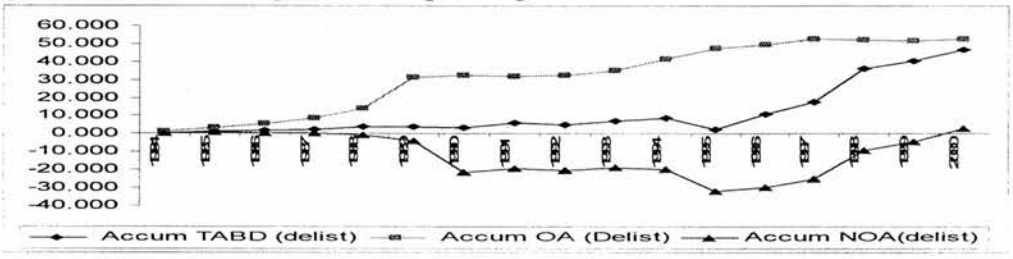


Figure 5 Cumulative negative non-operating accruals with listed firms

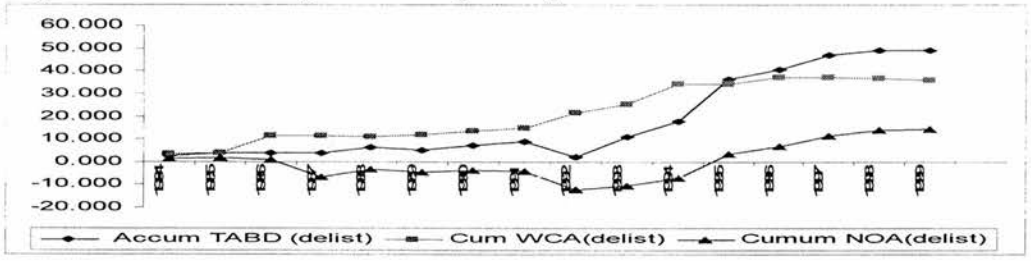
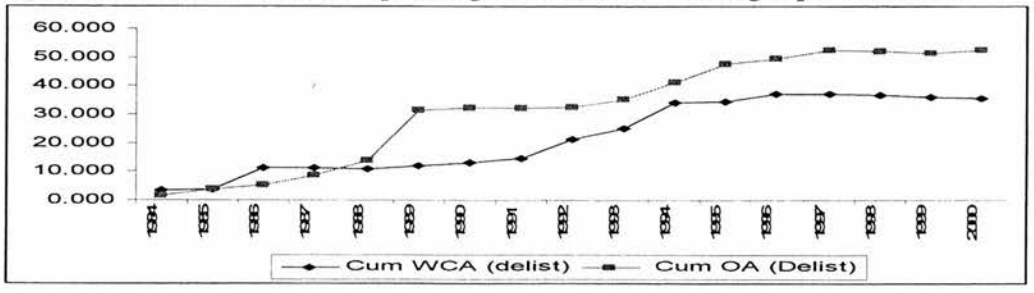


Figure 6 Difference between Operating accruals and Working capital accruals



APPENDIX 4

Conservatism – Calculation of cumulative accruals

4.1 Cumulative non-operating accruals

Figure 1 shows the average cumulative non-operating accruals based on three governance scores: separation score, NEO score and total score. The cumulative non-operating accruals are the accumulation of non-operating accruals for the periods of 1990-1998. The score indicate the implementation for Cadbury report's recommendation. The higher the scores is, the higher the compliance to the recommendations. Though for this model, the test is not significant.

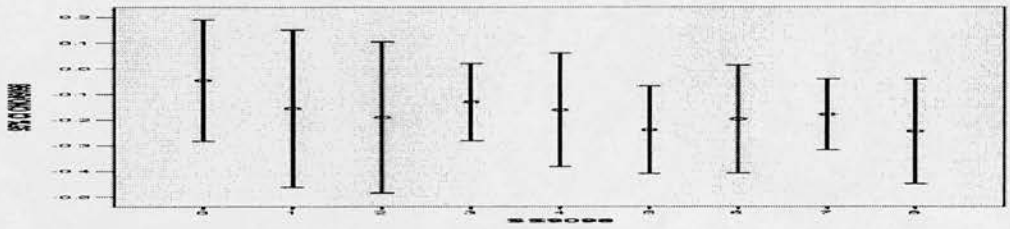


Figure 1 Separation score = ∑ (during 1990- 1998)

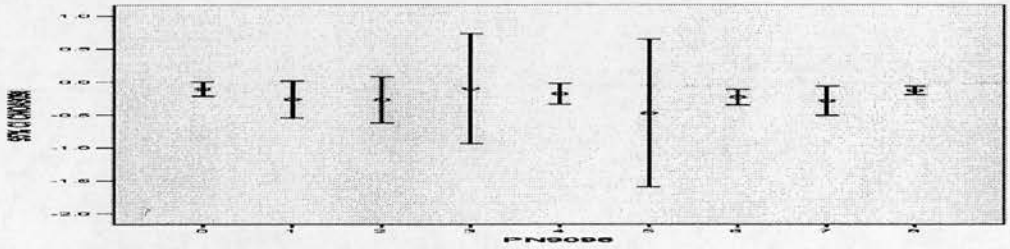


Figure 2 NEO score = ∑ (during 1990- 1998)

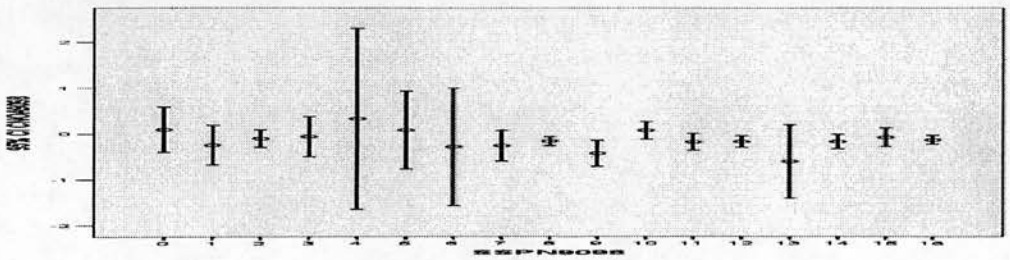


Figure 3 Total score = Separation score + NEO score

4.2 Cumulative total accruals before depreciation

The following graph shows the average cumulative total accruals before depreciation

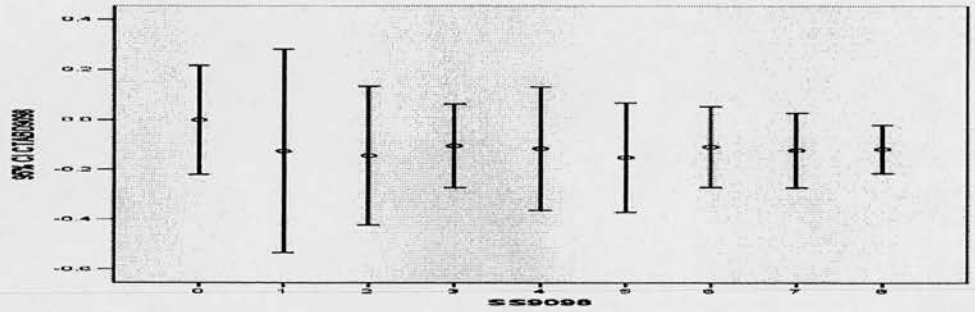


Figure 4 Separation score = ∑ (during 1990- 1998)

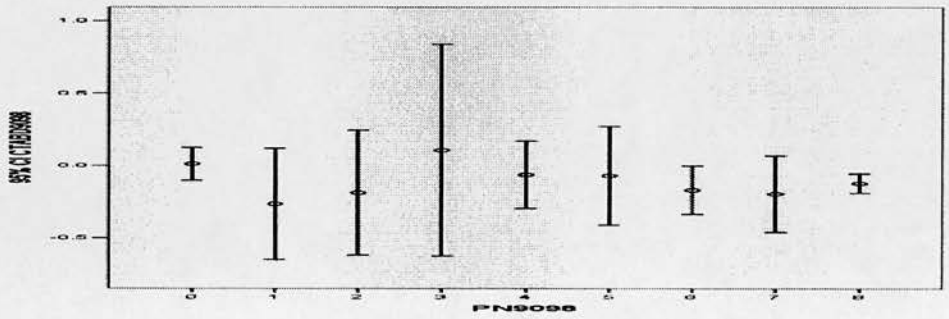


Figure 5 NEO score = ∑ (during 1990- 1998)

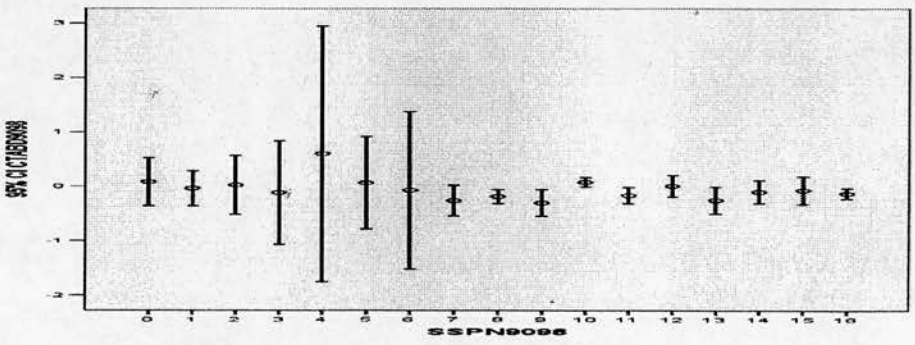


Figure 6 Total score = Separation score + NEO score

APPENDIX 5
Impact of conservative data on Altman Model

5.1 Introduction

Appendix 5 explores the probability of default using Altman model. Data and the results of logistic regression are displayed.

5.2 Data

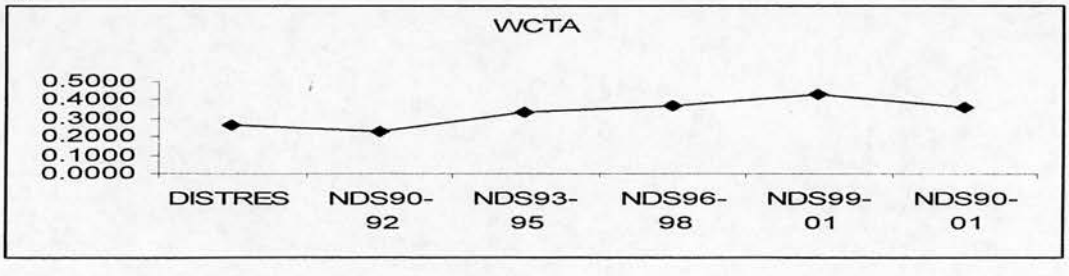
This table presents the mean of the five financial ratios over the 6 models see Table 1.

Table 1 Mean of the Data in Altman model

	WCTA	RETA	EBITTA	MVTL	SALETA
DISTRES	0.2633	-0.2610	-0.1310	3.3787	1.0469
NDS90-92	0.2309	0.2196	0.1043	3.1149	1.4305
NDS93-95	0.3295	0.1204	0.0690	5.0617	1.4079
NDS96-98	0.3652	-0.1382	0.0257	8.1089	1.3478
NDS99-01	0.4263	-0.6370	-0.0664	14.3859	1.2068
NDS90-01	0.3586	-0.2082	0.0139	8.9518	1.3225

The working capital is a measure of the net liquid assets of the firms. Working capital is current assets minus current liabilities. Current assets are expected to generate cash within a year while current liabilities are obligations to pay within a year. Figure 1, there is difference between distressed sample and NDS93-95, NDS96-98, NDS99-01, but not much difference between distress sample and NDS90-92 sample.

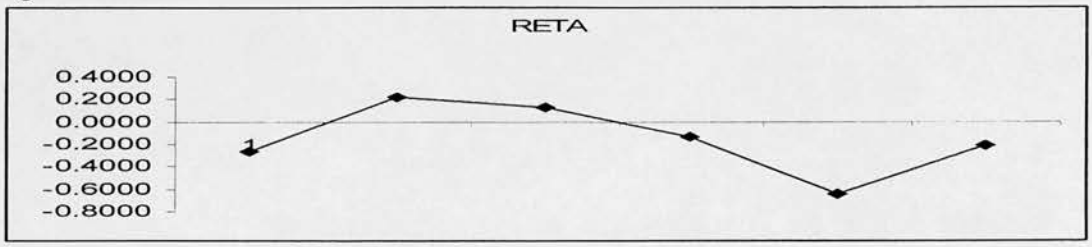
Figure 1 WCTA



Retained earning is the cumulative profitability over time. Technically, retained earnings are the same as equity. Altman(1968) states that the age of a firm is implicitly considered in this ratio. Altman(2000) documents that about 50% of the failed firms is in the first

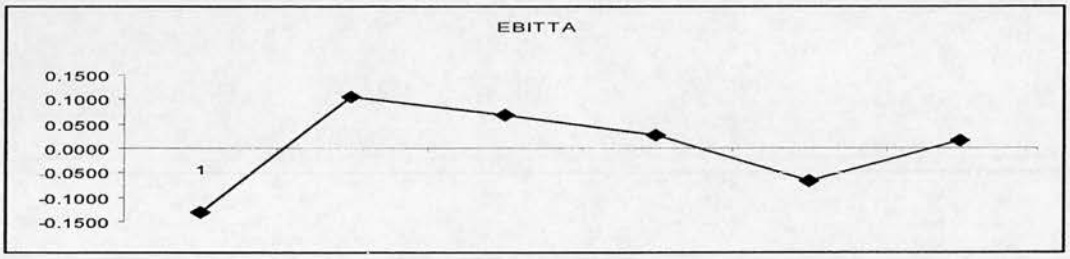
five years of their existence in 1993. There are ratio similarity between distress sample and samples from late 1990s, such as NDS96-98, DDS99-01.

Figure 2 RETA



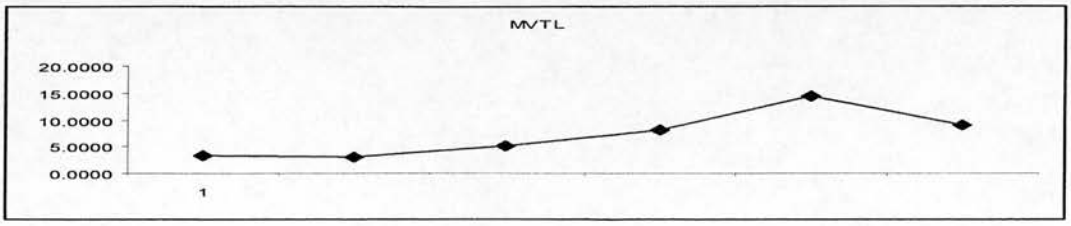
Altman (2000) states that EBIT/TA is particularly appropriate for studies dealing with corporate failure because a firm's ultimate existence is based on the earning power of its assets. In Figure 3, it can be observed the difference between distressed sample and NDS90-92, NDS93-95, and NDS 96-98, but the difference are minimised between distressed sample and NDS 99-01.

Figure 3 EBITTA



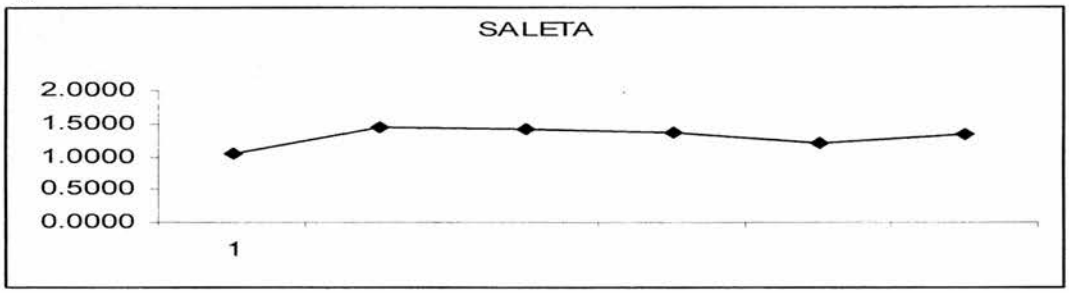
The measure Market value of equity/Book value of the total debt shows how much the firm's assets can decline in value. During the 1990s, there is difference between distressed sample and non-distressed samples see Figure 4.

Figure 4 MVTL



Altman (1968) regards Sale/Ta ratio as the measure of management's capability in dealing with competitive conditions. It can be clearly observed that the average of the ratio differ between the distressed and non-distressed samples, see Figure 5.

Figure 5 SALETA



5.3 Variables in the equation

(1) All variables

Following is the results of the logistic regression. B represents the change in the logit of the outcome variables associated with a one-unit change in the predictor variables.

Table 2 Logit results of the Altman models

		B	S.E	Wald	Sig.	Exp(B)
90-92	WC	0.469	1.192	0.155	0.694	1.599
	RE	-1.958	1.191	2.705	0.100	0.141
	EBIT	-5.903	2.257	6.843	0.009*	0.003
	MV	-0.113	0.056	4.110	0.043*	0.893
	sale	0.141	0.270	0.274	0.601	1.152
	Constant	-2.402	0.513	21.951	0.000*	0.091
93-95		B	S.E	Wald	Sig.	Exp(B)
	WC	-0.985	0.727	1.834	0.176	0.374
	RE	0.378	0.722	0.274	0.601	1.459
	EBIT	-4.637	1.843	6.331	0.012*	0.010
	MV	-0.062	0.039	2.553	0.110	0.940
	sale	-0.661	0.424	2.436	0.119	0.516
	Constant	-1.574	0.530	8.812	0.003	0.207
96-98		B	S.E	Wald	Sig.	Exp(B)
	WC	-0.698	0.542	1.655	0.198	0.498
	RE	0.439	0.384	1.311	0.252	1.552
	EBIT	-2.892	0.989	8.549	0.003*	0.055

	MV	-0.048	0.033	2.142	0.143	0.953
	sale	-0.621	0.333	3.485	0.062	0.537
	Constant	-2.114	0.455	21.617	0.000*	0.121
99-01		B	S.E	Wald	Sig.	Exp(B)
	WC	-0.382	0.422	0.819	0.365	0.683
	RE	0.261	0.213	1.502	0.220	1.299
	EBIT	-1.504	0.595	6.398	0.011*	0.222
	MV	-0.030	0.029	1.099	0.294	0.970
	sale	-0.424	0.366	1.345	0.246	0.654
	Constant	-2.659	0.467	32.377	0.000	0.070
90-'01		B	S.E	Wald	Sig.	Exp(B)
	WC	-0.547	0.549	0.992	0.319	0.579
	RE	0.206	0.222	0.857	0.355	1.229
	EBIT	-1.812	0.599	9.146	0.002*	0.163
	MV	-0.032	0.028	1.251	0.263	0.969
	sale	-0.598	0.369	2.631	0.105	0.550
	Constant	-3.471	0.469	54.686	0.000*	0.031

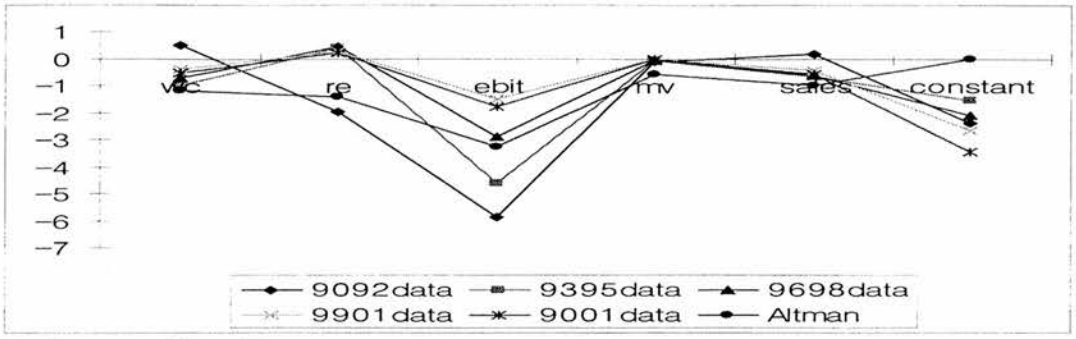
(2) Changes of coefficient

Wald statistics has a chi-square distribution and give information whether b-coefficient is significantly different from zero. If the coefficient is significantly different from zero, then the predictor is making a significant contribution to the prediction of the outcome. There needs to be caution with using Wald test. Menard (1995) state that when the regression coefficient is large, the standard error tends to become inflated, resulting in the Wald statistic being an underestimate.

Table 3 Changes of coefficient in Altman model

	wc	re	ebit	mv	sales	constant
9092data	0.469	-1.958	-5.903	-0.113	0.141	-2.402
9395data	-0.985	0.378	-4.637	-0.062	-0.661	-1.574
9698data	-0.698	0.439	-2.892	-0.048	-0.621	-2.114
9901data	-0.382	0.261	-1.504	-0.030	-0.424	-2.659
9001data	-0.547	0.206	-1.812	-0.032	-0.598	-3.471
Altman	-1.200	-1.400	-3.300	-0.600	-1.000	0.000

Figure 6 Changes of coefficient in Altman model



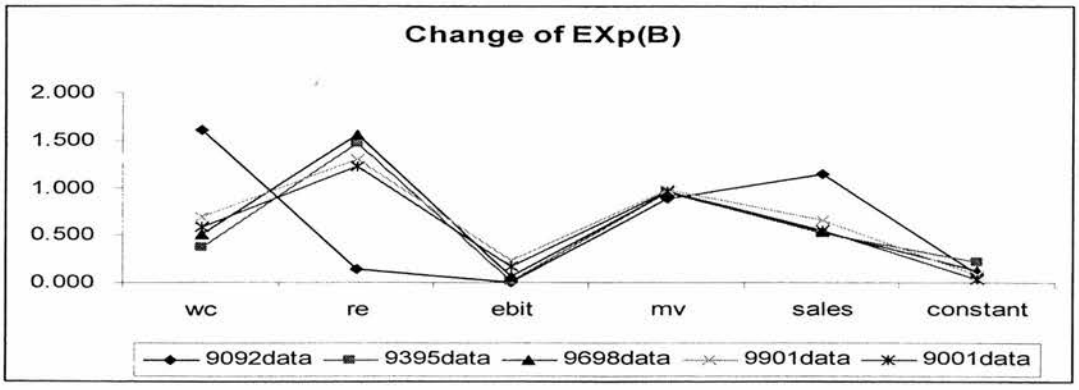
(3) Changes of Exp(B)

If the value of Exp(b) is greater than 1 then it indicates that as the predictor increases, the odds of the outcome occurring increase. When a value less than 1 it indicates that as the predictor increases, the odds of the outcome occurring decreases. The odds of bankruptcy firms decrease as the ebit increase, but odds ratio in the table shows systematic increase with the data using late 1990s. With 9092 data, the odds of bankruptcy decrease 0.003 times, while 9901 data, 0.222 times. This indicates that higher bankruptcy decreasing can result in no difference in calculating firm risk as the samples are used recent data.

Table 4 Changes of Exp (B) in Altman model

	wc	re	ebit	mv	sales	constant
9092data	1.599	0.141	0.003	0.893	1.152	0.091
9395data	0.374	1.459	0.010	0.940	0.516	0.207
9698data	0.498	1.552	0.055	0.953	0.537	0.121
9901data	0.683	1.299	0.222	0.970	0.654	0.070
9001data	0.579	1.229	0.163	0.969	0.550	0.031

Figure 7



APPENDIX 6
Impact of conservative data on Ohlson Model

6.1 Introduction

Appendix 6 explores the probability of default using Ohlson model. Data and the results of logistic regression are displayed.

6.2 DATA

Table 1 Mean of the Data in Ohlson model

	size	TLTA	WCTA	CLCA	NITA	CFOTL	NNP	TLBTA	NIABS
DISTRESS	4.4555	0.6017	0.2574	0.6669	-0.1852	-0.6135	0.4783	0.0435	0.7105
NDS90-92	5.1786	0.5167	0.2031	0.7387	0.0413	0.1641	0.0750	0.0000	0.3717
NDS93-95	4.9597	0.5296	0.2231	0.7587	0.0063	-0.1684	0.0917	0.0161	0.9223
NDS96-98	4.8068	0.5284	0.2537	0.6979	-0.0361	-0.2985	0.1393	0.0384	-0.1147
NDS99-01	4.7742	0.4938	0.2338	0.7229	-0.0996	-0.6358	0.2224	0.0390	0.0171
NDS90-01	4.8837	0.5146	0.2326	0.7256	-0.0380	-0.3180	0.1490	0.0281	0.2213

X_1 (Size) = log (total assets / GNP price level index)

X_2 (TLTA)=Total liabilities / total assets

X_3 (WCTA)=working capital / total assets

X_4 (CLCA)= Current liabilities /current assets

X_5 (NITA)=Net income / total assets

X_6 (CFOTL) Funds provided by operations / total liabilities

X_7 (NNP)= (1=if net income was negative for the last two years, 0= otherwise)

X_8 (TLBTA)= (1= if total liabilities > total assets, 0= otherwise)

X_9 (NTABS)= (Net Income $_t$ – Net Income $_{t-1}$) / (|Net Income $_t$| + | Net Income $_{t-1}$|)

6.3 Variables in the equation

(1) All variables

In 90-92 data, variables size, TLTA, WCTA, CFO are statistically significant. In 93-95 data, Variables NITA, NNP are statistically significant.

Table 2 Logit results of the Ohlson model

		B	S.E	Wald	Sig.	Exp(B)
90-92	size	-0.898	0.424	4.54	0.033*	0.407
	TLTA	7.345	2.335	9.898	0.002*	1548.246
	WCTA	7.665	3.249	5.565	0.018*	2131.462
	CLCA	1.152	1.415	0.663	0.415	3.164
	NITA	-2.315	1.769	1.713	0.191	0.099
	CFO	-0.977	0.427	5.221	0.022*	0.377
	NNP	-0.732	0.777	0.889	0.346	0.481
	TLBTA	0.896	36.756	0.001	0.981	2.449
	NIABS	0.048	0.075	0.407	0.523	1.049
	CONSTANT	-5.29	37.014	0.02	0.886	0.005
		B	S.E	Wald	Sig.	Exp(B)
93-95	size	-0.245	0.355	0.475	0.491	0.783
	TLTA	0.852	0.479	3.161	0.075	2.345
	WCTA	0.346	1.57	0.048	0.826	1.413
	CLCA	-0.337	0.812	0.172	0.679	0.714
	NITA	-2.511	1.174	4.573	0.032*	0.081
	CFO	0.173	0.159	1.192	0.275	1.189
	NNP	-1.854	0.547	11.51	0.001*	0.157
	TLBTA	2.951	2.325	1.615	0.204	19.126
	NIABS	0.026	0.039	0.449	0.503	1.026
	CONSTANT	-3.551	3.257	1.189	0.276	0.029
		B	S.E	Wald	Sig.	Exp(B)
96-98	size	-0.073	0.319	0.053	0.818	0.929
	TLTA	1.836	0.954	3.704	0.054	6.274
	WCTA	-0.973	1.965	0.245	0.62	0.378
	CLCA	-0.284	1.144	0.062	0.804	0.753
	NITA	0.136	0.953	0.02	0.887	1.145
	CFO	0.004	0.197	0	0.985	1.004
	NNP	-2.2	0.641	11.79	0.001*	0.111
	TLBTA	3.162	1.988	2.53	0.112	23.611
	NIABS	0.051	0.046	1.246	0.264	1.053
	CONSTANT	-4.865	3.282	2.197	0.038*	0.008
99-01		B	S.E	Wald	Sig.	Exp(B)
	size	-0.169	0.299	0.318	0.573	0.845
	TLTA	3.34	1.123	8.845	0.003*	28.225
	WCTA	1.113	1.836	0.368	0.544	3.044
	CLCA	-0.133	1.09	0.015	0.903	0.876
	NITA	0.494	0.801	0.38	0.538	1.639
	CFO	0.02	0.135	0.023	0.879	1.021
	NNP	-1.591	0.546	8.482	0.004*	0.204

	TLBTA	3.617	1.891	3.658	0.056	37.233
	NIABS	0.028	0.038	0.512	0.474	1.028
	CONSTANT	-6.865	3.041	5.097	0.024*	0.001
		B	S.E	Wald	Sig.	Exp(B)
90-'01	size	-0.151	0.303	0.247	0.619	0.86
	TLTA	0.621	0.368	2.85	0.091	1.861
	WCTA	-0.391	1.459	0.072	0.789	0.676
	CLCA	-0.198	0.826	0.058	0.81	0.82
	NITA	-0.117	0.465	0.063	0.801	0.89
	CFO	0.067	0.127	0.28	0.597	1.07
	NNP	-1.748	0.515	11.52	0.001*	0.174
	TLBTA	1.172	1.494	0.615	0.433	3.228
	NIABS	0.032	0.036	0.819	0.365	1.033
	CONSTANT	-3.646	2.307	2.497	0.114	0.026

(2) Changes of coefficient

Table 3 Changes of coefficient in Ohlson models

Data	size	TLTA	WCTA	CLCA	NITA	CFO	NNP	TLBTA	NIABS	CONSTANT
9092	-0.898	7.345	7.665	1.152	-2.315	-0.977	-0.732	0.896	0.048	-5.290
9395	-0.245	0.852	0.346	-0.337	-2.511	0.173	-1.854	2.951	0.026	-3.551
9698	-0.073	1.836	-0.973	-0.284	0.136	0.004	-2.200	3.162	0.051	-4.865
9901	-0.169	3.340	1.113	-0.133	0.494	0.020	-1.591	3.617	0.028	-6.865
9001	-0.151	0.621	-0.391	-0.198	-0.117	0.067	-1.748	1.172	0.032	-3.646
Ohlson	-0.407	6.030	-1.430	0.075	-2.370	-1.830	0.285	-1.720	-0.521	-1.320

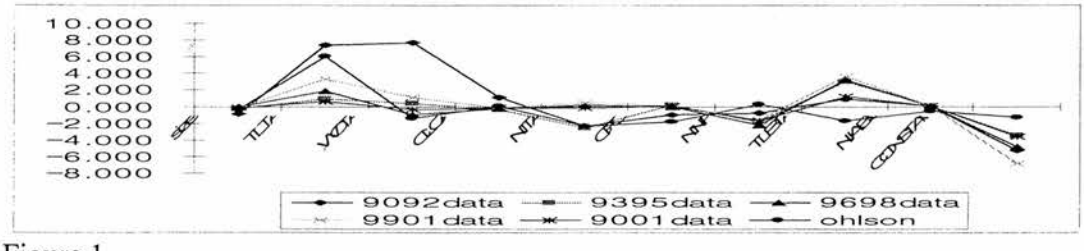


Figure 1

(3) Changes of Exp(B)

Table 4 Changes of Exp(B) in Ohlson models

Data	size	TLTA	WCTA	CLCA	NITA	CFO	NNP	TLBTA	NIABS	CONSTANT
9092	0.407	1548	2131	3.164	0.099	0.377	0.481	2.449	1.049	0.005
9395	0.783	2.345	1.413	0.714	0.081	1.189	0.157	19.13	1.026	0.029
9698	0.929	6.274	0.378	0.753	1.145	1.004	0.111	23.61	1.053	0.008
9901	0.845	28.23	3.044	0.876	1.639	1.021	0.204	37.23	1.028	0.001
9001	0.86	1.861	0.676	0.82	0.89	1.07	0.174	3.228	1.033	0.026

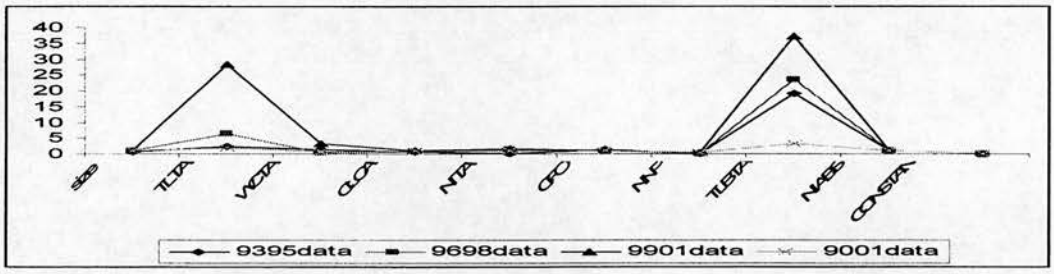


Figure 2

APPENDIX 7
Merton Model Calculation

7.1 Introduction

Appendix 7 explores the probability of default using Merton model. Data and the results of SAS are displayed.

7.2 DATA

Table 1 Means of the data for option model

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
x	392370	381302	399572	357606	366049	347478	311055	302919	322826	382551	404679
Ve	456925	619269	612463	496886	567466	631538	659153	724181	671902	935736	895729
σ_e	0.370	0.378	0.396	0.382	0.393	0.391	0.393	0.383	0.411	0.441	0.488
Va-init	849295	1000571	1012035	854492	933514	979016	970207	1027100	994728	1318287	1300408
σa-init	0.199	0.221	0.208	0.230	0.240	0.253	0.263	0.256	0.251	0.294	0.340

X= book value of liability, Ve=Market value of Equity σ_e = volitarity of stock return, Va init = X + Ve, $\sigma_A = \sigma_E V_E / (V_E + X)$.

Table 2 Standard Deviation of the data for option model

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
x	969560	1023541	1174314	1071654	1070633	1069772	921837	973307	1153492	1367993	1348844
Ve	1241947	2029340	2184929	1330929	1749027	2197655	2566186	3345773	4025834	4817664	4365984
σe	0.104	0.115	0.135	0.159	0.166	0.177	0.195	0.187	0.191	0.197	0.208
va-init	2052839	2786006	2994570	2267197	2739652	3172716	3360591	4085782	4833325	5888868	5398521
σa-init	0.073	0.078	0.091	0.104	0.106	0.132	0.159	0.166	0.168	0.186	0.229

7.3 Simultaneous Calculation

SAS program is used to solve the equation (1) and (3), following is the coding of the program including partial data.

$$V_E = V_A N(d_1) - X e^{-rT} N(d_2) \qquad (1)$$

$$P_{def} = \text{Prob}(V_A \leq X) = N\left(-\frac{\ln(\frac{V_A}{X}) + (\mu - 0.5\sigma_A^2)T}{\sigma_A\sqrt{T}}\right) \quad (2)$$

$$\sigma_E = \frac{V_A}{V_E} N(d_1)\sigma_A \quad (3)$$

where,

$$d_1 = \frac{\ln(\frac{V_A}{X}) + (r + 0.5\sigma_A^2)T}{\sigma_A\sqrt{T}}, \quad d_2 = d_1 - \sigma_A\sqrt{T}$$

V_E = the current market value of equity

V_A = the firm's assets value, with an instantaneous drift μ, and an instantaneous volatility σ_A

X = the book value of the debt at time t, that has maturity equal to T

r = risk-free rate of interest

σ_A= the volatility of assets value, the standard deviation of asset return

N = the cumulative density function of the standard normal distribution

7.4 SAS Program

```
Data one;
    Input id r x ve sige va siga;
    Datalines;
```

1991001	5.88	87,216	382000	0.23	469216	0.19
1991003	5.88	1,130,400	2189000	0.19	3319400	0.13
1991004	5.88	3,498,000	5515000	0.27	9013000	0.17
1991008	5.88	38,058	115000	0.23	153058	0.17
1991010	5.88	80,096	205000	0.26	285096	0.19
1991015	5.88	312,000	1207000	0.24	1519000	0.19
1991016	5.88	7,116	28000	0.23	35116	0.18
1991017	5.88	24,165	81000	0.18	105165	0.14
1991019	5.88	569,600	731000	0.30	1300600	0.17
1991021	5.88	1,306,300	1330000	0.30	2636300	0.15
1991025	5.88	25,052	86000	0.21	111052	0.16

```
1991029  5.88      159,313          248000  0.30      407313      0.18
;
Run;

Proc model data = one;
Bounds 0< va siga;
 eq.call = va * probnorm(((log(va/x) + (r + siga * siga /2 ))) / (siga * sqrt(1)))
          - x*exp(-r )* probnorm(((log(va/x) + (r - siga * siga /2 ))) / (siga * sqrt(1)))
          - ve;
 Eq.hedge = (siga * va / ve) *  probnorm(((log(va/x) + (r + siga * siga /2 ))) / (siga *
sqrt(1))) –sige;
Solve va siga / solveprint;
Run;
```

7.5 Samples of SAS Program

```
                    The SAS System      14:13 Friday, October 28,
2005 584

                    The MODEL
Procedure

                     Model Summary

                   Model Variables       2
                   Equations             2
                   Number of Statements
4


                  Model Variables  va siga
                      Equations  call hedge

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                     The MODEL
Procedure
                   Simultaneous Simulation
```

Observation 1 Iterations 2 CC 0.000000 eq.call 0.000000

Solution Values

va siga

352673.5 0.2

Residual Values

va siga

187007.5 -0.1

Observation 2 Iterations 2 CC 0.000000 Eq.hedge 0.000000

Solution Values

va siga

4915840 0

Residual Values

va siga

1066160 -0

7.6 Estimation result of V_A and σ_A

Table 3 Average V_A data for option model

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Va(all)	454414	608155	620632	511168	569275	632443	660386	727919	676167	938115	856287
valist)	456489	611859	629858	492701	586461	700222	737447	813666	780837	1164808	1011168
va(delist)	446390	593222	586100	575125	518046	478748	485248	527845	446123	489768	550212

Table 4 Average σ_A data for option model

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
σa(all)	0.333	0.337	0.350	0.338	0.355	0.362	1.722	0.358	0.424	38.726	0.458
σa(list)	0.338	0.343	0.356	0.345	0.366	0.369	0.361	0.357	0.434	0.399	0.431
σa(delist)	0.314	0.315	0.325	0.314	0.324	0.347	4.815	0.360	0.403	114.528	0.511